PKZIP® 6.0
Command Line
User's Manual

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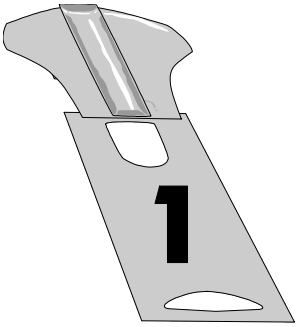

Welcome to PKZIP

Overview:

This chapter contains an introduction to PKZIP, an explanation of the contents of this manual, and information about the technical support services offered to you as a valued PKZIP user.

Note: It is highly recommended that you review the **Getting Started Manual** before proceeding.

Sections in This Chapter:

- Introduction
- About This Manual
- Your Work Environment: The Command Line
- Using Help
- Getting License Information
- Getting Version Information
- Using PKWARE Technical Support

Introduction

Compressing files into a .ZIP archive is quick and easy with PKZIP. The powerful but simple to use PKZIP command line gives you the ability to fully customize your data compression tasks. Before you create a .ZIP file, consider the following:

Do you prefer speed or compression?

Do you want directory path information stored in your .ZIP file?

Will you send .ZIP files to others? If so, would a self-extracting .ZIP benefit them?

Do you want to protect your .ZIP file with a password?

With PKZIP, you can create two types of .ZIP files: regular and PKSFX® self-extracting. A regular .ZIP file contains only the compressed files. You need PKZIP installed on your system to extract the files. A self-extracting .ZIP file contains the compressed files and built-in instructions that allow you to extract files without using PKZIP. It also contains a different extension: .exe. This is helpful when you send .ZIP files to those who do not have access to PKZIP or other .ZIP compatible programs.

About This Manual

This manual is organized for the novice and expert user alike. If you are a new PKZIP user, you will find the tutorials in Chapter 2 helpful. If you have previously used other versions of PKZIP, such as PKZIP for DOS 2.04, you may find that although the base functionality has been preserved, the command line implementation is different with new commands and options. If you are an advanced user, *Appendix A: PKZIP Options: A Quick Reference* on page 147 may be all the reference material you need.

Your Work Environment: The Command Line

PKZIP is a command-line based product, which means your work area is a character-based command line. Using PKZIP consists primarily of typing a command and pressing ENTER. Command prompt conventions allow you to extensively customize your compression and extraction tasks.

Note: Although this manual is not an operating system manual, it does contain general reminders on conventions as they relate to a task or tutorial.

Using Help

In addition to the information provided in this manual, PKZIP also contains online help for your convenience. The online help contains information on PKZIP commands, options, and sub-options.

To access online help:

1. At the command prompt, type the following and press ENTER:

```
pkzipc -help
```

A screen with PKZIP version and usage information appears as well as the following prompt:

```
Press any key to continue or <Esc> to exit
```

Press any key. A screen with all available PKZIP commands and options appears as well as the following prompt:

```
Enter the command or option for additional help, <Esc> to exit
Command/Option?
```

Enter a command or option at the prompt and press ENTER. The help information for that particular command or option appears.

2. To bypass the command/option menu and go directly to a help file for a particular command or option, type the ***help*** command followed by an equal sign (**=**) and the command or option for which you need online assistance. For example, to access online help for the ***add*** command, type the following at the command prompt and press ENTER:

   pkzipc -help=add

   The help information for the ***add*** command appears.

Getting License Information

To display the PKZIP license information on your screen, do the following:

1. At the command prompt, type the following and press ENTER:

   pkzipc -license

   If you have the registered version of PKZIP, information similar to the following appears:

```
PKZIP(R) Version 6.0 FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved.  Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745

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Brown Deer, WI 53223    Support:  www.pkware.com/support
```

Getting Version Information

To determine the version of PKZIP you are using, do the following:

1. At the command prompt, type the following and press ENTER:

pkzipc -version

Information similar to the following appears:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved.  Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745
Version 6.0
```

Advanced users of PKZIP often require more detailed version information to assist in automating compression and extraction operations. PKZIP has the capability to return the version number as a value to the shell. The version number returns as a positive integer value less than 256. This value is only returned to the shell and is therefore not viewable. This functionality can be useful to verify PKZIP version numbers in the context of a .BAT file or shell script. The default action is to return the major number of the release. For example, for version 2.5 the return value will be 2. Using sub-options with the ***version*** option will return precise values of the release number to the shell. The available sub-options and the values they return are outlined in the following table:

Sub-Option:	PKZIP Returns:	For example:
major	The major release number. For example, if the version number is 2.5, the value returned is <2>.	pkzipc -version=major
minor	The minor number of the release. For example, if the version number is 2.5, the value returned is <5>.	pkzipc -version=minor
step	The step or patch value. For example, if the version is 2.04.01, the step value returned is <1>.	pkzipc -version=step

Using PKWARE Technical Support

We hope that using PKZIP is an enjoyable and trouble-free experience. Our goal is to provide you with the best product and documentation possible. However, problems and questions might arise. In most cases, you will be able to answer those questions or solve the problems by referring to the **Getting Started Manual**, the online help or the manual you are now reading. If, however, you need further assistance, you can reach the PKWARE Technical Support Department in the following ways:

Internet/Usenet.

Faxing/Calling a Technical Support Representative.

Remember to refer to this manual **before** you use one of these options.

Using Internet/Usenet

PKWARE products are frequently discussed in the newsgroup comp.compression. Internet newsgroups are not supported directly by PKWARE. You will find a customer assistance area on PKWARE's web site. Additionally, you may use the Internet/Usenet to contact PKWARE Technical Support. PKWARE's Internet address is as follows:

http://www.pkware.com/support/

Before You Call

The more information you provide, the easier it will be for PKWARE Technical Support Representatives to help you. Before you use one of the technical support services, please have the following information handy:

The version number of PKZIP. Refer to *Getting Version Information*.

The *exact* commands you typed into your computer prior to noticing the problem and any error messages that appear.

Calling a PKWARE Technical Support Representative

The most direct way to receive assistance about PKZIP is to call a PKWARE Technical Support Representative on the telephone. The PKWARE Technical Support Department is available Monday through Friday from 8:00 AM to 5:00 PM Central Standard Time.

Before you call, we recommend that you FAX the necessary configuration information to PKWARE. To help you organize this information, use the Customer Support Form that follows. This gives the technical support representative some time to review your problem and offer a solution. Please indicate on the FAX that you will be calling.

The PKWARE FAX number is:

+1-414-354-8559

If you require immediate attention, call the PKWARE Technical Support Department at:

+1-414-354-8699

Using the PKWARE Customer Support Form

For your convenience, a Customer Support Form has been provided to help you record the information to accurately report the problem you are experiencing. Include as much information on the form below as possible.

Customer Support Form

Customer Information

Your Name:	
Company Name:	
Voice Phone Number:	
FAX Phone Number:	
Address:	
City and State:	
ZIP code and Country:	
Email Address:	

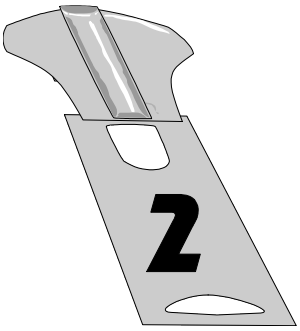
System Configuration Information

Software Version:	
Computer Model/Make:	
Operating System Version:	

Information

Problem:	
Description: (Use Next Page)	

Notes:



The Basics

Overview:

This chapter contains information to get you started with PKZIP, including quick, easy-to-follow instructions on performing basic compression and extraction tasks. Tutorials help you practice, by systematically guiding you through each task.

Sections in This Chapter:

- Introduction
- Using the Tutorials
- Compressing Files: Learning the Basics
- Extracting Files: Learning the Basics
- Understanding PKZIP Commands and Options
- What's Next?

Introduction

This chapter introduces you to basic compression and extraction tasks using PKZIP. This includes using command line conventions to help customize your data compression and extraction tasks. For example, you may specify a destination location for your .ZIP file even if you are not compressing files in that particular location. You may also use conventions such as "*" to represent *all* files. PKZIP incorporates these conventions to help make using PKZIP easy as well as flexible.

In addition to using conventions, PKZIP contains its own set of special commands and options that even further customize compression and extraction tasks. These commands and options are detailed in subsequent chapters as well as the chapter you are now reading. Specifically, this chapter contains tutorials that will allow you to practice with PKZIP on files that were created and copied to a special tutorial directory. Refer to the *Creating the Tutorial Directory and Files* section, in the **Getting Started Manual** for specific information on setting up your tutorial workspace.

Using the Tutorials

To help you learn PKZIP, this chapter contains several tutorials. These tutorials progress from simple to complex features. Each tutorial is preceded by a brief explanation of the topic(s) that the tutorial represents. For each tutorial, you will be asked to perform a specific PKZIP task. The results of what you type are reviewed every step of the way.

Conventions Used in the Tutorials

This manual was written for several operating system and platform versions of the command line implementation of PKZIP. To avoid confusion, we have tried to minimize references to specific operating systems or platforms. There may be instances in the tutorials where it is necessary to refer to an operating system or platform convention. Since PKZIP' s command line interface is virtually identical between the various operating system/platform versions, the examples used in this manual are, for the most part, universal. However, keep in mind that what you see on your screen might differ slightly from what you see in the examples.

Typically, in command line examples, we only reference what you would actually type at the command prompt, as in the following command line example:

pkzipc -add test.zip text.doc

Using Sample Files and Directories

The tutorials in this manual take you through compressing and extracting "specific" files from a "specific" tutorial directory. Feel free to use your own files if you choose to practice on them. However, keep in mind that the results that are displayed are specific to the files that these tutorials use as samples.

Note: These tutorials assume that you have installed PKZIP in the default installation directory. Additionally, the tutorials assume that you can access PKZIP from any directory without specifying a file path. Refer to the **Getting Started Manual** for information on how to properly install and configure PKZIP.

Preparing Your Workspace

To follow the tutorials in this manual step-by-step, you must create a working directory. Consider it a temporary directory to be used only for the tutorials. This helps to ensure that your permanent directories and files are not deleted or damaged while you are practicing with PKZIP. Refer to the *Creating the Tutorial Directory and Files* section in the **Getting Started Manual** for specific information on setting up your tutorial workspace.

.ZIP File Naming Conventions

The commands and options discussed in the following sections and chapters of this manual are entered (except for a few standalone commands) on a command line along with the name of a .ZIP file. If you enter the file name as "file.zip" or "file.exe", PKZIP will *not* modify the file name. However, any file name entered without a *.zip* or *.exe* extension will have an extension added by PKZIP unless the file name ends with a "trailing dot" such as "**file.** " Specifying a "trailing dot" with your file name on the command line tells PKZIP *not* to append an extension to the specified file name. For example, specifying "t." as the archive name would result in a file called "t" under Windows and OS/2. Conversely, specifying "t" as the archive name would result in a file called "t.zip". Other "dots" in a file name are ignored and left unchanged and only the trailing dot, if present, is used to suppress the adding of an extension to the .ZIP file name. On UNIX systems, using a trailing dot suppresses the .zip extension, but the dot remains a part of the file name. For example, specifying "t." as the archive name would result in a file called "t.". The ***nozipextension*** option suppresses the extension on all systems.

Systems that do not support more than one "dot" per file name will also suppress the extension if any dot is present in the file name. For example, on OS/2 FAT, entering "file.wow" results in a file called "file.wow", with no .ZIP extension added by PKZIP, even though the dot is not at the end of the file name. On the other hand, entering "file.wow" on Win32 FAT, UNIX, or OS/2 (H.P.F.S. & N.T.F.S.) results in a file called "file.wow.zip".

Compressing Files: Learning the Basics

This section contains information on how to perform simple data compression. You perform all PKZIP tasks from a command prompt.

The following are the minimum elements you need to type to compress files:

The word ***pkzipc***, which is the main PKZIP command.

A dash (**-**) followed by the word ***add*** (which is the base command used to compress files).

The name of the .ZIP file.

The names of the file(s) you want to compress.

For example, to compress a file called test.txt into a .ZIP file called temp.zip, type the following:

```
pkzipc -add temp.zip test.txt
```

When you compress files, the "pkzipc" and "-add" are constant. Every other element of the command varies, depending on the files being compressed in addition to their location. The sections that follow cover a wide range of compression (and extraction) possibilities in addition to tutorials to guide you.

Note: Many of the following tutorials instruct you to change from one directory to another. This operation is carried out with the help of the **cd** command. The **cd** command changes the current directory to a directory that you specify on the command line. Consult your operating system documentation for more information on the **cd** command.

Compressing a Single File in the Current Directory

The simplest PKZIP task is compressing a single file from the current working directory, and storing the resulting .ZIP file in that same directory. In this scenario, you are not retrieving files to compress from other directories, nor are you placing the .ZIP file in a different directory.

Tutorial A

Compress a single file (red.txt) into a .ZIP file in your current working directory.

Follow these steps:

1. From the command prompt, change to the PKZIP Tutorial (tut) directory that you have created. For information on creating the PKZIP Tutorial directory, refer to the **Getting Started Manual**. To compress the file

red.txt into the .ZIP file called test.zip, type the following command and press ENTER:

pkzipc -add test.zip red.txt

Your file starts to compress, and your screen looks like the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Creating .ZIP: test.zip
  Adding File: red.txt      Deflating    (62.1%), done.
```

The first three lines contain the PKZIP banner information (name of the product, date, version and so on).

The last two lines list the name of the .ZIP file you created, the file(s) that were compressed, and the percentage that the file was compressed.

You have now successfully compressed a file into a .ZIP file. Before you continue with the next section, let's take a look at your ***tut*** directory.

3. View the contents of the *tut* directory by typing one of the following commands:

- From a UNIX based command prompt, type:

ls -l

A file listing similar to the following will appear:

```
-rw-rw-rw-   1 user    pkware      1030 June 30 2:50 black.tut
-rw-rw-rw-   1 user    pkware      4185 June 30 2:50 blue.fil
-rw-rw-rw-   1 user    pkware      5920 June 30 2:50 brown.doc
-rw-rw-rw-   1 user    pkware      1030 June 30 2:50 gold.tut
-rw-rw-rw-   1 user    pkware       591 June 30 2:50 green.doc
-rw-rw-rw-   1 user    pkware       591 June 30 2:50 orange.fil
-rw-rw-rw-   1 user    pkware      1030 June 30 2:50 pink.tut
-rw-rw-rw-   1 user    pkware       591 June 30 2:50 purple.txt
-rw-rw-rw-   1 user    pkware      4185 June 30 2:50 red.txt
-rw-rw-rw-   1 user    pkware      4185 June 30 2:50 tan.txt
-rw-r--r--   1 user    pkware      1702 June 30 2:59 test.zip
-rw-rw-rw-   1 user    pkware      5920 June 30 2:50 white.doc
-rw-rw-rw-   1 user    pkware      5920 June 30 2:50 yellow.doc
```

- From a DOS based command prompt, type:

dir

A file listing similar to the following will appear:

```
.              <DIR>          06-01-01 12:00a .
..             <DIR>          06-01-01 12:00a ..
ORANGE   FIL             561  06-01-01  4:50a orange.fil
YELLOW   DOC           8,369  06-01-01  4:50a yellow.doc
RED      TXT           8,369  06-01-01  4:50a red.txt
GREEN    DOC             591  06-01-01  4:50a green.doc
PURPLE   TXT             591  06-01-01  4:50a purple.txt
WHITE    DOC           8,369  06-01-01  4:50a white.doc
BROWN    DOC           8,369  06-01-01  4:50a brown.doc
PINK     TUT          30,155  06-01-01  4:50a pink.tut
TEST     ZIP           1.702  06-01-01  4:50a test.zip
TAN      TXT           8,369  06-01-01  4:50a tan.txt
BLACK    TUT          30,155  06-01-01  4:50a black.tut
BLUE     FIL           8,369  06-01-01  4:50a blue.fil
GOLD     TUT          30,155  06-01-01  4:50a gold.tut
        13 file(s)         36,880 bytes
         2 dir(s)      87,945,216 bytes free
```

Note the test.zip file you have created. The file you compressed into the .ZIP file still appears in the current directory. That is because when you compress files, they remain in their original location, as well as inside the .ZIP file, compressed.

You can choose to remove or "move" the files into the .ZIP file so that they exist only in the .ZIP file after compression. The *Moving Files Into Your .ZIP File* section on page 23 shows you how to do this.

Compressing Selected Files in the Current Directory

With PKZIP, you can compress specific selected files into your .ZIP file. To do this, you simply type the files in your command, including a space between each one.

Tutorial B

Compress the following files into the test.zip file:

green.doc

blue.fil

Follow these steps:

1. From the command prompt, type the following and press ENTER:

   pkzipc -add test.zip green.doc blue.fil

   Your file starts to compress, and output similar to following appears:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Updating .ZIP: test.zip
  Adding File: green.doc    Deflating    (39.3%), done.
  Adding File: blue.fil     Deflating    (62.1%), done.
```

   This particular example added the specified files to the existing test.zip file. As you can see in the screen output above, PKZIP reports that it is "Updating .ZIP: test.zip" the .ZIP archive now contains any file(s) we added in the previous tutorial as well as the file(s) we added in this tutorial.

Compressing Files that Match a Pattern

PKZIP allows you to compress "only" files of a specific file pattern or extension. For example, you might want to compress only .doc files or .bmp files. On the other hand, you might want to compress all files that begin with the letter "p" or any other character match.

Using PKZIP conventions for typing file patterns (commonly called "wildcards"), follow these guidelines:

For files of a specific extension, type an asterisk, a period, and the extension. You would type ***.txt** for ASCII text files (.txt extension).

For files that begin with a specific character or characters, type the character(s), then an asterisk (*). You would type **res***for all files that begin with res.

For files that end with a specific character pattern, type an asterisk (*), then the character(s). For example, for all files that end in "all" you would type ***all**.

Note: For other "wildcard" conventions and general command-line conventions, refer to your Operating System documentation.

Tutorial C

Compress all files in your tut directory that end with ".doc"

Follow these steps:

1. From your command prompt, type the following and press ENTER:

   pkzipc -add test.zip *.doc

   The following appears on your screen:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Updating .ZIP: test.zip
Updating File: green.doc    Deflating    (39.3%), done.
  Adding File: yellow.doc   Deflating    (59.4%), done.
  Adding File: white.doc    Deflating    (59.4%), done.
  Adding File: brown.doc    Deflating    (59.4%), done.
```

   When PKZIP is finished, the command prompt reappears.

Compressing All Files in the Current Directory

PKZIP allows you to compress all files in a specified directory. In the previous tutorials you compressed files by specifying either a specific file name (e.g., red.txt) or file pattern (e.g., *.doc). When you compress "all" files, you only have to type the name of the .ZIP file with the ***add*** command. PKZIP will assume that you wish to compress all files in the current directory. If, however, you wish to specify "all" files in another directory, you must use the convention for specifying "all" files (e.g., "*").

Tutorial D

Compress all the files in your tut directory into the test.zip file.

Follow these steps:

1. From your command prompt, type the following and press ENTER:

pkzipc -add test.zip

Your files start to compress. Because you are compressing all of the files in your tut directory, this will take a little longer.

Output similar to the following appears:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Updating .ZIP: test.zip
Updating File: red.txt      Deflating    (62.1%), done.
Updating File: green.doc    Deflating    (39.3%), done.
Updating File: blue.fil     Deflating    (62.1%), done.
Updating File: yellow.doc   Deflating    (59.4%), done.
Updating File: white.doc    Deflating    (59.4%), done.
Updating File: brown.doc    Deflating    (59.4%), done.
  Adding File: tan.txt      Deflating    (62.1%), done.
  Adding File: orange.fil   Deflating    (39.3%), done.
  Adding File: black.tut    Deflating    (61.0%), done.
  Adding File: purple.txt   Deflating    (39.3%), done.
  Adding File: pink.tut     Deflating    (61.0%), done.
  Adding File: gold.tut     Deflating    (61.0%), done.
```

The phrase *Updating File* appears in front of some files, while *Adding File* appears in front of others. This is because in this tutorial you compressed files that were already compressed in the previous tutorials. The phrase *Updating File* appears with those particular files.

Compressing Files from a Different Location

When you compress files, you do not have to be in the directory where those files reside. You can compress them from anywhere on your computer. Instead of just typing the file names, you type the directory path along with the file names.

Tutorial E

In this tutorial, you will switch locations to the directory that is directly above (parent to) the PKZIP Command Line install directory and compress files that appear in the PKZIP tutorial directory.

Follow these steps:

1. Go to the directory that is directly above the PKZIP install directory. (e.g., c:\program files\pkware or /usr/local/pkware).

2. To compress the file called purple.txt from the PKZIP tutorial directory into a file called test123.zip file and place the test123.zip file into the current directory, type one of the following command lines and press ENTER:

   - From a UNIX based command prompt, type:

     pkzipc -add test123.zip pkzipc/tut/purple.txt

   - From a DOS based command prompt, type:

     pkzipc -add test123.zip pkzipc\tut\purple.txt

   Your files start to compress, and the following appears:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Creating .ZIP: test123.zip
  Adding File: purple.txt   Deflating    (39.3%), done.
```

   The test123.zip file is created in the current directory as that is the directory in which you typed the command. You can also specify a different location in which to create or update a .ZIP file. The next section shows you how to do that.

Specifying a Different Location for the .ZIP File

Until now, you have created a .ZIP file in the current directory. With PKZIP, you can specify a "different" location for the .ZIP file right in the command line. Simply include the location, or directory path, in your command.

Tutorial F

While remaining in the directory that is parent to the PKZIP install directory, compress the file called gold.tut, which is in PKZIP Tutorial directory, and place it in the test.zip file, which exists in PKZIP Tutorial directory as well.

Follow these steps:

1. Verify that you are in the appropriate directory.

2. To compress gold.tut into the test.zip file, and place the updated .ZIP file in the PKZIP Tutorial directory, type one of the following command lines and press ENTER:

   - From a UNIX based command prompt, type:

     pkzipc -add pkzipc/tut/test.zip pkzipc/tut/gold.tut

   - From a DOS based command prompt, type:

     pkzipc -add pkzipc\tut\test.zip pkzipc\tut\gold.tut

   Your files start to compress, and a screen similar to the following appears:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Updating .ZIP: pkzipc/tut/test.zip
Updating File: gold.tut     Deflating    (61.0%), done.
```

Moving Files into Your .ZIP File

Normally, the original files that you compress remain on your hard drive after you compress them. That is the default action when you use the ***add*** command. PKZIP allows you to *remove* the files from your hard drive location *after* they are compressed into the .ZIP file.

> **CAUTION:** Be careful when "moving" files from your hard drive to a .ZIP archive. If the .ZIP archive is subsequently damaged, lost, or deleted, any files contained therein will be damaged, lost, or deleted with it. Regularly back up your .ZIP archives to avoid such problems.

To remove files after they are compressed, use the ***move*** option along with the ***add*** command. To include an option in your PKZIP command, you simply type that option - preceded by a dash - after the ***add*** command. The following tutorial shows you how to do this.

Note: For basic information on PKZIP options, refer to the *Understanding PKZIP Commands and Options* section on page 35.

Tutorial G

In this tutorial, you are going to compress the file called pink.tut into the test.zip file, and "remove" pink.tut from your tut directory.

Follow these steps:

1. Change back to the PKZIP Tutorial directory.

2. Type the following and press ENTER:

   pkzipc -add -move test.zip pink.tut

Your file starts to compress, and your screen looks similar to the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Updating .ZIP: test.zip
Updating File: pink.tut     Deflating    (61.0%), done.

Moving 1 files...
Moved File: pink.tut     , done.
```

Note that PKZIP performed two tasks: Updating and Moving. After compressing the file, PKZIP removed it from the tut directory.

3. To verify that the file you compressed was removed from your directory, type one of the following commands and press ENTER:

- From a UNIX based command prompt, type:

  ls -l

- From a DOS based command prompt, type:

  dir

Verify from the listing that the pink.tut file no longer exists as an individual file in the PKZIP Tutorial directory. The pink.tut file does however exist, compressed, in the test.zip file.

Viewing Files Within a .ZIP File

In the previous section, you learned how to move a file from the hard drive into a .ZIP archive. The file you moved still exists in your test.zip file. You can use the ***view*** command to verify that this file was indeed archived in the .ZIP file. The ***view*** command allows you to list the files that exist within a .ZIP file. Because you are not compressing files - only viewing them - you do not have to include the ***add*** command.

Tutorial H

View the files within the test.zip file.

Follow these steps:

1. Verify that you are in the PKZIP tutorial directory.

2. To view the files within the test.zip file, type the following and press ENTER:

pkzipc -view test.zip

PKZIP displays a file listing of all of the files contained in the test.zip file. The listing will look similar to the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745

Viewing .ZIP: test.zip

  Length Method     Size  Ratio    Date     Time   CRC-32  Attr   Name
 ------ ------     ----  -----    ----     ----   ------  ----   ----
  8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  red.txt
   561B DeflatN     340B 39.4% 06/01/2001  4:50a b6a63b7f -a-w-  green.doc
  8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  blue.fil
  8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  brown.doc
  8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  white.doc
  8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  yellow.doc
    29KB DeflatN    8130B 73.1% 06/01/2001  4:50a faf7aa7a -a-w-  black.tut
    29KB DeflatN    8130B 73.1% 06/01/2001  4:50a faf7aa7a -a-w-  gold.tut
   561B DeflatN     340B 39.4% 06/01/2001  4:50a b6a63b7f -a-w-  orange.fil
    29KB DeflatN    8130B 73.1% 06/01/2001  4:50a faf7aa7a -a-w-  pink.tut
   561B DeflatN     340B 39.4% 06/01/2001  4:50a b6a63b7f -a-w-  purple.txt
  8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  tan.txt
 ------             ------ -----                                  ----
  139KB              42KB 69.2%                                    12
```

For more information on the ***view*** command, see the *Viewing the Contents of a .ZIP File* section on page 120.

Note: The above ***view*** list was generated from a DOS command line. In a UNIX ***view*** listing, the "Attr" column would be replaced by a "Mode" column with permission numbers for each respective file.

Further Information on Compressing Files

The tutorials in the previous sections presented a sample of the file compression options available to you. For example, you can compress "only" files that are "newer" than the files already stored in the .ZIP file. You can also set the compression level, prioritizing either speed or compression.

For information on these and other compression features, refer to *Chapter 3 - Compressing Files* on page 43.

Extracting Files: Learning the Basics

With PKZIP, you can "extract" files just as easily as you can compress them. This section shows you how to "extract" files back to their original size. You can extract all files from a .ZIP file, or just one file. You can also extract only the files that are newer than the files with the same name on your hard drive.

When you extract a file, you have to include at least the following in your command, including a space between each element:

The word ***pkzipc***, which is the main PKZIP command.

A dash (**-**) followed by the word ***extract*** (which is the base command used to extract files).

The name of the .ZIP file.

Including these three elements extracts "all" the files contained in the .ZIP file into the current directory. To extract only specific files from the .ZIP file, you would include the following:

The name of the file(s) you want to extract, or a file pattern. For example, to extract a file called cover.txt from a compressed file called temp.zip into the current directory, you would type the following and press ENTER:

pkzipc -extract temp.zip cover.txt

The tutorials that follow cover several "extraction" scenarios. For complete information on extracting files, refer to C*hapter 4 - Extracting Files* on page

101.

Extracting a Single File From a .ZIP File

The simplest task for extracting files is to extract a single file into the current directory. To make it easy, we are going to create an "extract" directory under your tut directory. We will call this directory ext. You will also copy the test.zip file into this directory.

Before you extract files, create a directory called ext and copy the test.zip file into that directory.

Follow these steps:

1. Verify that you are in the PKZIP Tutorial directory.

2. To create the ext directory, type the following and press ENTER:

   mkdir ext

3. To copy the test.zip file into the ext directory, type the following and press ENTER:

   - From a UNIX based command prompt, type:

     cp test.zip ext

   - From a DOS based command prompt, type:

     copy test.zip ext

4. Now change to the ext directory. To do so, type the following and press ENTER:

   cd ext

Tutorial I

Extract the file called red.txt from the test.zip file.

Follow these steps:

1. Verify that you are in the ext directory.

2. Type the following and press ENTER:

   pkzipc -extract test.zip red.txt

   PKZIP extracts the file. Your screen will look similar to the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Extracting files from .ZIP: test.zip
    Inflating: red.txt
```

   The first three lines contain the PKZIP banner information (name of the product, date, version and so on).

   The fourth line contains the task PKZIP performed (in this case, *Extracting*) followed by the name of the .ZIP file (in this case, test.zip).

   The fifth line contains the word *Inflating*, then the name of the file being extracted (in this case, red.txt). *Inflating* is an internal method of extraction that is meaningful only to the program.

3. To confirm that red.txt has been extracted into the ext directory, type one of the following commands and press ENTER:

- From a UNIX based command prompt, type:

  ls -l red.txt

  A listing similar to the following appears:

```
-rw-rw-rw-   1 user    pkware      8369 June 30  2:50 red.txt
```

- From a DOS based command prompt, type:

  dir red.txt

  A listing similar to the following appears:

```
RED      TXT         8,369  06-30-97  2:50a red.txt
         1 file(s)          8,369 bytes
         0 dir(s)      88,793,088 bytes free
```

  Note that red.txt has been extracted into the ext directory.

Extracting Multiple Files From a .ZIP File

PKZIP allows you to extract multiple files from a .ZIP file at one time. This section shows you how to extract:

Selected individual files.

Files that match a specific file pattern. For example, files ending with a .txt extension.

All files in the directory.

To prepare your ext directory to extract multiple files, first remove the red.txt file that you extracted in the previous tutorial.

Follow these steps:

1. Verify that you are in the ext directory.

2. Type one of the following commands and press ENTER:

   - From a UNIX based command prompt, type:

     rm red.txt

   - From a DOS based command prompt, type:

     del red.txt

   The red.txt file is deleted. The only file that should be in the ext directory is test.zip.

Extracting Selected Files

With PKZIP, you can extract specific selected files from your .ZIP file. To do this, you simply type the files in your command, including a space between each one.

Tutorial J

Extract the following files from the test.zip file:

green.doc

blue.fil

Follow these steps:

1. Verify that you are in the ext directory.

2. Type the following and press ENTER:

   pkzipc -extract test.zip green.doc blue.fil

A screen similar to the following appears:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Extracting files from .ZIP: test.zip
    Inflating: blue.fil
    Inflating: green.doc
```

3. To confirm that the files were extracted, type one of the following commands and press ENTER:

- From a UNIX based command prompt, type:

  ls -l

  A listing similar to the following appears:

```
-rw-rw-rw-   1 user    pkware      1311 June 30 2:50 blue.fil
-rw-rw-rw-   1 user    pkware       131 June 30 2:50 green.doc
-rw-r--r--   1 user    pkware     24360 June 30 3:30 test.zip
```

- From a DOS based command prompt, type:

  dir

  A listing similar to the following appears:

```
.              <DIR>         06-30-97  4:00a .
..             <DIR>         06-30-97  4:00a ..
TEST     ZIP         45,488  06-30-97  3:30a test.zip
GREEN    DOC            561  06-30-97  2:50a green.doc
BLUE     FIL          8,369  06-30-97  2:50a blue.fil
         3 file(s)         54,418 bytes
         2 dir(s)      88,788,992 bytes free
```

Extracting All Files From a .ZIP File

You can extract all of the files from your .ZIP file. When you extract specific files, as before, you must specify those files or file pattern. When you extract "all" files, you only have to type the name of the .ZIP file with the ***extract*** command. You can also, however, use the convention for specifying "all" files (*).

Tutorial K

Extract all the files from the test.zip file into the ext directory.

Follow these steps:

1. Verify that you are in the ext directory.

2. To extract all files from the test.zip file, type the following and press ENTER:

   pkzipc -extract test.zip

   Because you are extracting files that already exist in your ext directory, PKZIP asks you if you want to overwrite the file by displaying the following prompt:

   Overwrite (<Y>es/<N>o/<A>ll/ne<V>er/<R>ename/<Esc>)?

3. Type **"y"** for yes if you wish to overwrite the file.

   The same prompt will appear for the other files that already exist in the EXT directory. If you wish to overwrite those files as well type **"y"**.

   PKZIP extracts the files, and the screen will look similar to the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Extracting files from .ZIP: test.zip
    Inflating: black.tut
PKZIP: (W7) Warning! file: blue.fil already exists.
Overwrite (<Y>es/<N>o/<A>ll/ne<V>er/<R>ename/<Esc>)? y
    Inflating: blue.fil
    Inflating: brown.doc
    Inflating: gold.tut
PKZIP: (W7) Warning! file: green.doc already exists.
Overwrite (<Y>es/<N>o/<A>ll/ne<V>er/<R>ename/<Esc>)? y
    Inflating: green.doc
    Inflating: orange.fil
    Inflating: pink.tut
    Inflating: purple.txt
    Inflating: red.txt
    Inflating: tan.txt
    Inflating: white.doc
    Inflating: yellow.doc
```

4. To confirm that the files were extracted into your ext directory, type one of the following commands and press ENTER:

- From a UNIX based command prompt, type:

  ls -l

A listing similar to the following appears:

```
-rw-rw-rw-   1 user    pkware     10900 June 30 2:50 black.tut
-rw-rw-rw-   1 user    pkware      1311 June 30 2:50 blue.fil
-rw-rw-rw-   1 user    pkware      1588 June 30 2:50 brown.doc
-rw-rw-rw-   1 user    pkware       619 June 30 2:50 gold.tut
-rw-rw-rw-   1 user    pkware       131 June 30 2:50 green.doc
-rw-rw-rw-   1 user    pkware       337 June 30 2:50 orange.fil
-rw-rw-rw-   1 user    pkware     10900 June 30 2:50 pink.tut
-rw-rw-rw-   1 user    pkware      1998 June 30 2:50 purple.txt
-rw-rw-rw-   1 user    pkware       315 June 30 2:50 red.txt
-rw-rw-rw-   1 user    pkware      3075 June 30 2:50 tan.txt
-rw-r--r--   1 user    pkware     24360 June 30 3:30 test.zip
-rw-rw-rw-   1 user    pkware     17404 June 30 2:50 white.doc
-rw-rw-rw-   1 user    pkware      1637 June 30 2:50 yellow.doc
```

- From a DOS based command prompt, type:

  dir

A listing similar to the following appears:

```
.              <DIR>          06-01-01 12:00a .
..             <DIR>          06-01-01 12:00a ..
ORANGE   FIL             561  06-01-01  4:50a orange.fil
YELLOW   DOC           8,369  06-01-01  4:50a yellow.doc
RED      TXT           8,369  06-01-01  4:50a red.txt
GREEN    DOC             591  06-01-01  4:50a green.doc
PURPLE   TXT             591  06-01-01  4:50a purple.txt
WHITE    DOC           8,369  06-01-01  4:50a white.doc
BROWN    DOC           8,369  06-01-01  4:50a brown.doc
PINK     TUT          30,155  06-01-01  4:50a pink.tut
TEST     ZIP          45,488  06-01-01  4:50a test.zip
TAN      TXT           8,369  06-01-01  4:50a tan.txt
BLACK    TUT          30,155  06-01-01  4:50a black.tut
BLUE     FIL           8,369  06-01-01  4:50a blue.fil
GOLD     TUT          30,155  06-01-01  4:50a gold.tut
        13 file(s)        187,850 bytes
         2 dir(s)      87,945,216 bytes free
```

You have now extracted all of the files contained in the test.zip file.

Overwriting Files that Already Exist in Your Directory

In the previous tutorial, you saw what appears when you extract files into a directory that contains file(s) with the same name. PKZIP offers several choices for handling the overwriting of files while extracting. Refer to *Chapter 4 - Extracting Files* on page 101 for complete information on extracting files from a .ZIP file.

Extracting Files to a Specified Directory

The extraction tutorials up to this point had you extract the contents of the test.zip file into the current directory. With PKZIP, you can specify a "different" extract location for the .ZIP file - right in your command. Simply include the location, or directory path.

Tutorial L

Extract the file called red.txt, archived in the test.zip file, into the directory above (parent to) the tutorial directory.

Follow these steps:

1. Verify that you are in the tut directory. If you are still in the ext directory, change to the tut directory.

2. To extract the red.txt file archived in the test.zip file into the tutorial directory's parent directory, type the following command line and press ENTER:

   pkzipc -extract test.zip red.txt ..

The two periods (..) at the end of the command line tell PKZIP to extract the file into the directory up one level in the directory structure. PKZIP runs, and the following appears:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745


Extracting files from .ZIP: test.zip
    Inflating: ../red.txt
```

As you can see from the "Inflating: ../" line above, PKZIP extracted the red.txt file to the parent directory of the current directory.

Further Information on Extracting Files

The tutorials in the previous "extract" sections offer only a small sample of file extraction options. For example, you can extract "only" those files that are "newer" than the files in the extract directory. You can also determine how to handle the overwriting of files in the extract directory.

For information on these and other extract features, refer to *Chapter 4 - Extracting Files* on page 101.

Understanding PKZIP Commands and Options

The previous sections demonstrated how to complete basic compression and extraction operations. In the tutorials, the **add** command was used to compress files while the **extract** command was used to extract files. These are the two most basic tasks in PKZIP.

With PKZIP, you can further customize compression and extraction tasks. You accomplish this by using additional commands and options. This section contains an introduction to these additional commands and options used in PKZIP, including basic conventions.

Difference between a Command and Option

A "command" represents the main task you are performing. For example, the ***add*** command represents the task of "compressing files".

An "option" is a qualifier to the main task that customizes that task in some fashion. For example, to maximize compression, use the ***maximum*** option with the ***add*** command. To sort files that you are extracting, use the ***sort*** option.

Remember in Tutorial G when you used the ***move*** option with the ***add*** command? The ***move*** option acted as a "qualifier" to ***add***, in that in addition to compressing the files, PKZIP also "moved" the files.

Including an Option in Your Command Line

In your PKZIP command, an option usually appears immediately following the main command (for example, ***add*** or ***extract***), separated by a space. The following is an example of using the ***maximum*** option with the ***add*** command, which instructs PKZIP to compress files at the "maximum level" but lowest speed:

```
pkzipc -add -maximum test.zip white.doc
```

An "option" is usually preceded by a command that represents the main task you are performing.

Tutorial M

Compress the white.doc file into the test.zip file using the highest level of compression (the ***maximum*** option).

Follow these steps:

1. Verify that you are in the tut directory. If you are in the ext directory, change to the tut directory.

2. To compress files using the ***maximum*** option, type the following and press ENTER:

```
pkzipc -add -maximum test.zip white.doc
```

PKZIP begins to compress the file using the 'maximum' or level 9 compression. Your screen will look similar to the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745

♦ Using compression level 9 - Maximum comp.

Updating .ZIP: test.zip
Updating File: white.doc    Deflating    (59.6%), done.
```

Abbreviating Commands and Options

When you include an option in your PKZIP command, you can abbreviate that option, as long as it remains unique. In the preceding example, you could have typed "max" instead of "maximum" as it is the only option that begins with the letters "max". The same example would look like the following:

```
pkzipc -add -max test.zip white.doc
```

Combining Options

With PKZIP, you can combine options in the same command; for example, if you want to compress files at the maximum level of compression, in addition to adding a comment to the header area of the .ZIP file. To accomplish this, you would use the ***header*** and ***maximum*** options in your command, as in the following example:

```
pkzipc -add -header -max test.zip brown.doc
```

The order in which you type the options is not important. You could have typed:

```
pkzipc -add -max -header test.zip brown.doc
```

Not all options can be combined with others; for example, in the previous example, you would not use maximum with another compression level option because you can only select one compression level. See *Appendix A* on page 147 for a complete list of commands and options and their functionality.

Tutorial N

In this tutorial, you will compress the brown.doc file into the test.zip file using the ***fast*** option. Additionally, you will add a header comment to the test.zip file using the ***header*** option. The ***fast*** option instructs PKZIP to use the fastest compression speed.

Follow these steps:

1. Verify that you are in the tut directory.

2. To compress files using the ***fast*** and ***header*** options, type the following and press ENTER:

   pkzipc -add -fast -header test.zip brown.doc

   The ***fast*** option emphasizes faster compression speed over the compressed file size. The ***header*** option instructs PKZIP to prompt you to enter a header comment that will then appear in the header area of the .ZIP file.

   PKZIP will display the following prompt:

   ```
   Zip Header ?
   ```

3. Specify a header comment (type ASCII text at the 'Zip Header' prompt) and press ENTER. The PKZIP output screen, including the " Zip Header ?" prompt, will look similar to the following:

   ```
   PKZIP(R)  Version 6.0  FAST!  Compression Utility
   Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
   PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745

   ♦ Using compression level 2 - Fast

   Updating .ZIP: test.zip
   Zip Header ? this is my header
     Adding File: brown.doc    Deflating    (58.8%), done.
   ```

As you can see from the screen output, PKZIP is using compression level 2. Also note that we supplied the comment "this is my header" at the "Zip Header ?" prompt.

Commands and Options That Contain Values

Some commands and options contain specific values or sub-options that further qualify a compression or extraction operation. For example, PKZIP contains an option called ***level*** that allows you to specify the level of compression and speed you want to use. The sub-option or value would equal any digit from 0 through 9, with 0 being no compression at the fastest speed, and 9 being the most compression at the slowest speed.

When you include a value with a command or option, the value is separated from the option with an equal sign. For example, if you wished to specify minimum compression while emphasizing maximum speed, you could use the following option and sub-option:

```
level=1
```

An example of a command that uses values is the **add** command. For example, you can compress only files that exist in the .ZIP file and that have changed since the last time you compressed them. This value is called "freshen" and you include it with your add command as follows:

```
add=freshen
```

Some commands and options contain more than one value from which to choose. They also contain "default" values, which are listed via a PKZIP option called ***configuration***. For information on values and defaults, refer to *Chapter 6 - Changing Defaults Using the Configuration File* on page 133.

For complete information on the values available with commands and options, refer to *Appendix A: PKZIP Options: A Quick Reference* on page 147.

Tutorial O

In this tutorial, you will compress files using a command and option, both of which contain sub-options or values. Specifically, you will compress only files that exist in the test.zip file, but that have changed. Additionally, you will specify that the file be minimally compressed while emphasizing maximum compression speed. This is accomplished by using the ***add=freshen*** command as well as the ***level=1*** option.

Follow these steps:

1. Verify that you are in the tut directory.

2. Open a text editor (e.g., vi; notepad; e). Type anything in the edit screen that you wish. Save the file into your tut directory as test.txt. Exit the text editor. A file called test.txt should now exist in your tut directory.

3. Add the test.txt file to the test.zip archive by typing the following:

```
pkzipc -add test.zip test.txt
```

The test.txt file is added to the test.zip archive.

4. Re-open test.txt file located in the tut directory with your text editor (e.g., vi; notepad; e). Edit or add characters in the edit screen. Re-save the file as test.txt into your tut directory. An updated test.txt file should now exist in your tut directory.

5. Type the following and press ENTER:

```
pkzipc -add=freshen -level=1 test.zip
```

PKZIP adds only those files that have been updated since test.zip was first created or last modified. Since we modified the test.txt file in Step 4, it will be updated in the test.zip archive. In addition, our command line tells PKZIP to compress the files using minimal compression while emphasizing maximum compression speed.

The screen output will look similar to the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745

♦ Using compression level 1 - Maximum speed

Freshening .ZIP: test.zip
Updating File: test.txt     Storing      ( 0.0%), done.
```

Commands and Options: Compression or Extraction?

Some command and options in PKZIP apply only to "compressing" while others apply only to "extracting". Some of these commands and options apply to both.

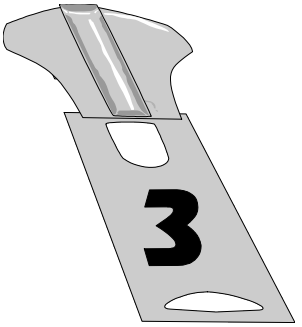
Refer to the next two chapters, *Compressing Files* and *Extracting Files*, for information on which options you can use with which tasks.

Setting Defaults

With PKZIP, you can set up and change default values for many of the commands and options. *Chapter 6 - Changing Defaults Using the Configuration File* on page 133 shows you how to set, view, and edit PKZIP's default settings.

What's Next?

Congratulations! You have learned enough information to use the basic features of PKZIP. Nevertheless, this chapter is only the beginning. To learn more features, refer to the remaining chapters in this manual.



Compressing Files

Overview:

This chapter contains information on the commands and options used in file compression and archival.

Sections in This Chapter:

Introduction

PKZIP offers several options for compressing files into a .ZIP file. The previous chapter introduced you to some PKZIP basics. This chapter contains detailed information on the features and compression functionality presently available in PKZIP.

Conventions in this Chapter

Most commands and options discussed in this and subsequent chapters work for all versions of PKZIP. In instances where a command or option is specific to a platform or operating system, the manual will indicate as much. (e.g., UNIX, WIN32, OS/2).

In some of the headings in this chapter, a word appears immediately below the heading. That word represents the actual command or option you would type in your PKZIP command line (and in many cases, a value or sub-option in addition to the command (e.g., ***add=all***)). If the text under the heading is the command followed by an equal sign and another word, it means that the other word is a value (sub-option) that goes with that command.

Default Values for Commands and Options

For each compression task in this chapter, the command or option that represents that task contains a default value. A default value represents the action that occurs when only the name of the command or option is included in your PKZIP command. For example, the default for the ***add*** command is to compress "all" files.

For commands and options that contain defaults, these defaults are stored in the Configuration file. PKZIP's Configuration Options can *only* be edited through PKZIP. Refer to *Chapter 6 - Changing Defaults Using the Configuration File* on page 133 for more information.

Compressing New and Existing Files

When you compress files into a .ZIP file, you can create a new .ZIP file or add/update files in an existing .ZIP archive. For example, you might only want to compress files that end in ".doc". On the other hand, you might want to update files in an existing .ZIP file, but only those that have changed since the last time you compressed them.

Note: The ***add*** command is used for creating new .ZIP files as well as adding files to an existing .ZIP archive.

Compressing All Files in a Directory

add

You have the option of compressing all files in a particular directory with a single command. To do this, you do not have to specify each file. Simply type ***pkzipc -add,*** and the name of your .ZIP file, as shown below:

```
pkzipc -add test.zip
```

In this example, all files in the current directory will be compressed into the test.zip file.

Note: The above command only compresses files that are located in that particular directory, not in the subdirectories that might appear below that directory. To learn how to compress files that appear in subdirectories, refer to the *Compressing Files in Subdirectories* section on page 49.

You can also specify files from a different directory if you wish. For example, if you were in a parent directory to a directory called temp and you wanted to compress all the files in the temp directory, you could type the following:

```
pkzipc -add test.zip temp/*
```

The resultant test.zip file is stored in the current directory (the parent directory to the temp directory in our example).

Note: By default, all files in a specified directory are added to your .ZIP file with PKZIP's ***add*** command. Unless you have modified the ***add*** default setting through the PKZIP Configuration Settings file, you would not need to include the 'all' sub-option in your command line to compress all files. For more information on modifying PKZIP's default values through the PKZIP Configuration Settings file, see *Chapter 6 - Changing Defaults Using the Configuration File* on page 133.

Compressing New and Modified Files

add=update

PKZIP allows you to specify that only new or modified files are added to an existing .ZIP archive. When the ***update*** sub-option is used in conjunction with the command, the files specified for archiving will be compared against the files already present in the .ZIP file. If the file(s) to be added into the .ZIP file is already present and is *not* newer, PKZIP will *not* re-compress the file.

By using this option, you may save yourself time when archiving files that are backed up repeatedly. This option differs from the behavior of the ***freshen*** option in that files which are not already present in the .ZIP file will be added.

To compress only updated files or files not already archived in a specific .ZIP file, use the ***update*** sub-option with the ***add*** option, as shown below:

```
pkzipc -add=update test.zip *.doc
```

In this example, a .ZIP file called test.zip is created in the current directory. All files in the current directory matching the file specification (*.doc) will be added or updated into the test.zip archive.

Compressing Only Files That Have Changed

add=freshen

The ***freshen*** value allows you to selectively update files archived in a .ZIP file. PKZIP will compress only files that exist in the .ZIP file and that have changed. To update files that have changed, use the ***freshen*** value with the ***add*** option, as shown below:

```
pkzipc -add=freshen test.zip
```

You can also abbreviate the value, so you could type the following instead:

```
pkzipc -add=fre test.zip
```

When you use ***freshen*** with ***add***, only files that already exist in the .ZIP file "and" that have also changed will be compressed. No new files will be added to the .ZIP file.

If you only want to re-compress specific files, simply include those files in your command. For example, if you wanted to re-compress a file called resume.doc, you would type something like this:

```
pkzipc -add=freshen test.zip resume.doc
```

In the above example, only resume.doc will be re-compressed into the test.zip file. This assumes that the version of resume.doc being added is newer than the version of resume.doc that already exists in the .ZIP file.

Clearing Archive Attributes (WIN32, OS/2)

add=incremental

If you wish to add files to a .ZIP file that have the archive attribute set and subsequently clear the archive attribute on those files, use the ***add*** command with the ***incremental*** sub-option. If you wish to add files to a .ZIP file that have the archive attribute set and *not* clear the archive attribute on those files, use the ***add*** command with the ***-incremental*** sub-option.

The ***incremental*** and ***-incremental*** sub-options can be very useful when backing up files. If, for example, the ***incremental*** sub-option is specified, only files with the archive attribute will be compressed, and the archive attribute will be set to OFF when the ZIP operation is complete for these files.

In the following command line example, PKZIP will add only those files to test.zip with the archive attribute set. Additionally PKZIP will clear the archive attribute on any of the source files that have been added to test.zip.

```
pkzipc -add=incremental test.zip
```

The next time you run this command, only those files that have the archive attribute set (new or updated files) will be added to the test.zip file.

Incremental Archiving (WIN32)

add=archive

By using this option, you can create a complete backup of your disk, while clearing the archive attributes to make the way for incremental archiving.

Incremental archiving makes use of the archive attribute to take only the files which have been modified since the last backup. For this process to work smoothly, you must first have a complete backup and a clearing of the archive attribute for all files.

```
pkzipc -add=archive -dir f:backup.zip
```

This prepares the files set for future incremental. For future incremental backups, use

```
pkzipc -add=incremental test.zip
```

The archive option should only be used if you are preparing your disk for incremental backup (by doing a full backup) or if you are doing a full backup of your disk.

Archive Attribute Explained

Any given file may have several properties associated with it. One such property or attribute is called the Archive Attribute. When a file is created, this attribute is set to be ON. In addition, if a file is altered, the attribute is

set. After a file has been backed-up by a program which uses this attribute, the attribute is switched off. By making use of the archive attribute, you can make certain that you get all files that are new or changed. You save time by not backing up files you have previously archived. This process is called an Incremental Backup.

Compressing Files in Subdirectories

recurse

PKZIP does not automatically compress files that appear in subdirectories, unless you specify those directories, or use the ***recurse*** option with the ***add*** command. With the ***recurse*** option, all specified files in a directory structure, including files located in subdirectories will be compressed.

If you have a directory called tut with a nested subdirectory called test, to compress all of the files in the tut directory and all files in the tut/test directory, you would type the following in the tut directory:

```
pkzipc -add -recurse test.zip *
```

All files in the tut directory as well as those files in subdirectories of the tut directory are compressed. However, directory path information is not stored within the .ZIP file. If you want to store directory information within your .ZIP file (in addition to compressing all the files in those directories), use the ***path*** option with the ***recurse*** option or simply use the ***directories*** option.

Note: UNIX users should utilize the ***include*** option or place quotation marks around wildcard designations to bypass automatic wildcard expansion by your shell, which may restrict your pattern search. See the **Getting Started Manual** for more information.

Storing Directory Path Information

path

Normally, when PKZIP compresses files, only the files are stored within the .ZIP file, not the paths of those files. However, you can instruct PKZIP to

store the directory path information of a file within the .ZIP file. (When you extract the files later, you have the option of retaining the directory structure of those files.)

If for example, a file you are compressing appears in the doc/temp directory, you can store the file within the .ZIP file as:

doc/temp/<filename>

If you are currently in a directory called PKWARE, underneath the PKWARE directory is a nested subdirectory called test. If you wish to store relative directory path information within a .ZIP file, use the *path* option with the *add* command:

pkzipc -add -path test.zip test/*.txt

In the previous example, any .txt files that exist in the /PKWARE/test directory are archived in the test.zip file. Additionally, the relative path (test/*.txt) is also stored in the test.zip. If the files stored in test.zip were then extracted, using the ***directories*** option, this path information would be preserved and the files, as well as the directory where the files were originally stored, would be created and/or extracted. Keep in mind that with the ***path*** option alone, PKZIP only searches the current directory for files. If you wish to search subdirectories as well as preserve the directory structure, use the ***path*** option in conjunction with the ***recurse*** option or simply use the ***directories*** option.

Additional Methods for Storing Directory Path Information

In addition to storing relative path information, PKZIP allows you to further customize path information storage in your .ZIP files. Several sub-options allow you specify exactly what directory and path information is to be stored.

Each sub-option is a value that you include with the path option. The path option and/or sub-option will override the path value in the PKZIP Configuration File. If no sub-option is specified, only relative path information is stored. Examples of each sub-option appear in the table below:

Sub-option:	To:	For example:
current	Store the directory path relative	pkzipc -add -path=current docs.zip docs/*

	to the current location.	In this example, only directory information under the docs directory will be stored. Parent directory information will not be stored.
root or full	Store the full path, starting from the root directory down.	pkzipc -add -path=root docs.zip docs/* In this example, the entire directory path, starting from "root" directory will be stored.
specify	Store the directory path information that is specified in your PKZIP command.	pkzipc -add -path=specify docs.zip temp/docs/* In this example, temp/docs is the directory information that will be stored.
relative	Store the directory path relative to the current working directory of the drive specified. **(WIN32)**	pkzipc -add -directories=relative docs.zip c:*.doc z:*.doc In this example the path information for those directories recursed under the current working directory (for both the C: and Z: drives) will be stored.
none	Turn off the path option. (Used to override configuration file).	pkzipc -add -path=none docs.zip /temp/docs/* In this example, only the file names are stored.

Storing and Recreating Directory Path Information

directories

The ***directories*** option works with both the ***add*** and ***extract*** commands. When used with the ***add*** command, the ***directories*** option is equivalent to using both the ***recurse*** and ***path*** options together. The ***directories*** option instructs PKZIP to search subdirectories for files and save the files with their directory path information in the .ZIP file. When used with the ***extract*** command, the ***directories*** option extracts the files while preserving the directory tree structure and file location.

The following example illustrates compression operations using the ***add*** command with the ***directories*** option. The command line that follows will compress a file called resume.doc into a file called test.zip. resume.doc, for the purposes of this example, resides in the temp directory.

```
pkzipc -add -directories test.zip resume.doc
```

The screen output will look similar to the following:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved.  Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745

Creating .ZIP: test.zip
  Adding File: temp/resume.doc Deflating    (69.3%), done.
```

As you can see from the Adding File: line above, the current path to the file resume.doc is listed (temp/resume.doc). For information on extracting files compressed with directory information, see the *Retaining Directory Structure while Extracting* section on page 113.

Note: UNIX users should utilize the ***include*** option or place quotation marks around wildcard designations to bypass automatic wildcard expansion by your shell, which may restrict your pattern search. See the **Getting Started Manual** for more information.

As with the path option, PKZIP provides several methods for storing directory path information. The available sub-options are listed in the following table:

Sub-option:	To:	For example:
current	Store the directory path relative to the current location.	pkzipc -add -directories=current docs.zip docs/* In this example, only directory information under the docs directory will be stored. Parent directory information will not be stored.
root or full	Store the full path, starting from the root directory down.	pkzipc -add -directories=root docs.zip docs/* In this example, the entire directory path, starting from "root" directory will be stored.
specify	Store the directory path information that is specified in your PKZIP command.	pkzipc -add -directories=specify docs.zip temp/docs/* In this example, temp/docs is the directory information that will be stored.
relative	Store the directory path relative to the current working directory of the drive specified. **(WIN32)**	pkzipc -add -directories=relative docs.zip c:*.doc z:*.doc In this example, the path information for those directories recursed under the current working directory (for both the C: and Z: drives) will be stored.
none	Turn off the path option. (Used to override configuration file).	pkzipc -add -directories=none docs.zip /temp/docs/* In this example, only the file names are stored.

Refer to the previous section, *Additional Methods for Storing Directory Path Information*, for more information.

Compressing Files with a LIST File

Rather than specifying a specific file or file pattern in your command line, you have the option of pointing to a LIST file in your command line. The LIST file is an ASCII text file that contains file names and their locations. A LIST file can be an ideal solution for users who archive specific file sets on a regular basis. It saves time in that it is not necessary to type appropriate file names and paths each time you wish to compress these files with PKZIP. A LIST file may contain wild card specifications (*,?) as well as exact file names and paths.

A LIST file in a DOS based environment might look similar to the following:

```
*.exe
*.doc
\tut\*.doc
\tut\?????.*
pkzip.html
```

A LIST file in a UNIX based environment might look similar to the following:

```
/usr/local/pkware/pkzipc/*.doc
/usr/local/pkware/pkzipc/pkzip.html
/usr/local/pkware/pkzipc/?????.exe
/*
```

Using the @ character in your command line, you can point to the LIST file. You can assume that the LIST file is called lst.txt and that it resides in your current directory. An example of such a command line follows:

```
pkzipc -add test.zip @lst.txt
```

In the previous example, PKZIP creates a file called test.zip using file information it retrieves from a file called lst.txt, located in the current directory. lst.txt contains file location information that PKZIP uses to add files to the test.zip archive. You may also use a LIST File to specify files for exclusion from an archive, based on some criteria, using the ***exclude*** option. The ***exclude*** option is discussed in more detail on page 58. Use the ***listchar*** option to specify something other than the @ character as the LIST character. For more information on the ***listchar*** option, see *Chapter 7 - Command Characteristics* on page 141.

Note: The file format for a LIST file when extracting files may differ from the format referenced above. See the *Extracting Files with a LIST File* section on page 115 for more information.

Compressing Files Based on Some Criteria

after, newer, before, older, larger, smaller, include, exclude

With PKZIP, you can compress files based on certain criteria. You can compress:

Files that are newer than a specified date.

Files that are older than a specified date or number of days.

Files that are newer than a specified number of days.

Files that are larger or smaller than a specified size.

All files of a specific pattern.

All files "except" those specified.

Refer to the sections that follow for more information.

Compressing Files Newer Than a Specified Date or Number of Days

after

With PKZIP, you can choose to compress only those files that are newer or equal to a specified date. To do this, use the ***after*** option, followed by an equal sign and the date, as shown below:

```
pkzipc -add -after=062495 test.zip
```

In this example, only files that contain a date newer or equal to June 24, 1995 will be compressed.

With PKZIP, you can enter dates in the following formats:

mmddyy

mmddyyyy

The order in which you enter the month, date, and year depends on your ***locale*** setting. For more information on the ***locale*** setting, see *Chapter 7 - Command Characteristics* on page 140.

newer(Win32, UNIX)

With PKZIP, you can choose to compress only files that are newer than a specified number of days. To do this, use the ***newer*** option, followed by an equal sign and the number of days, as shown below:

```
pkzipc -add -newer=5 test.zip *
```

In this example, only files that have been modified in the past 5 days will be compressed.

Compressing Files Older Than a Specified Date or Number of Days

before

With PKZIP, you can choose to compress only files that are older than a specified date. To do this, use the ***before*** option, followed by an equal sign and the date, as shown below:

```
pkzipc -add -before=062495 test.zip
```

In this example, only files that contain a date older than June 24, 1995 will be compressed.

With PKZIP, you can enter dates in the following formats:

mmddyy

mmddyyyy

The order in which you enter the month, date, and year depends on your ***locale*** setting. For more information on the ***locale*** setting, see *Chapter 7 - Command Characteristics* on page 140.

older (Win32, UNIX)

With PKZIP, you can choose to compress only files that are older than a specified number of days. To do this, use the ***older*** option, followed by an equal sign and the number of days, as shown below:

```
pkzipc -add -older=5 test.zip *
```

In this example, only files that have been modified more than 5 days prior to the current date will be compressed.

Compressing Files Larger or Smaller than a Specified Size

larger

With PKZIP, you can choose to compress only files that are larger (in bytes) than a specified size. To do this, use the ***larger*** option, followed by an equal sign and the size, as shown below:

```
pkzipc -add -larger=5000 test.zip *
```

In this example, only files that are larger than 5000 bytes will be compressed.

smaller

With PKZIP, you can choose to compress only files that are smaller (in bytes) than a specified size. To do this, use the ***smaller*** option, followed by an equal sign and the size, as shown below:

```
pkzipc -add -smaller=5000 test.zip *
```

In this example, only files that are smaller than 5000 bytes will be compressed

Including Files That Match a Pattern

include

PKZIP allows you to compress files that match a specific pattern, for

example, all files that end in the .doc extension.

To compress files that match a pattern, simply include the pattern after the ***add*** command, as in the following example:

```
pkzipc -add test.zip *.doc
```

You have the option of specifying a default file pattern setting in your PKZIP Configuration Settings file. If, for example, you want to automatically include all files with the extension of .doc in PKZIP compress and extract operations, enter the following:

```
pkzipc -config -include=”*.doc”
```

When you use the ***include*** option with the ***configuration*** command, PKZIP prompts you to configure the ***include*** default for add *and/or* extract operations. The .doc file pattern will henceforth be included by default in compress and/or extract operations. If, for example, you type the following command line:

```
pkzipc -add test.zip *.txt
```

Those files with .txt *and* .doc extensions are added to the test.zip archive.

If you set up a default pattern in the Configuration file, but want to specify a different pattern for this instance only (for example, compress all files that end in .txt), use the ***include*** option followed by an equal sign, then the file pattern, as in the example below:

```
pkzipc -add -include=”*.txt” test.zip
```

If you do not set a default for ***include*** in the Configuration file, it is not necessary to specify the ***include*** option in your command, only the file pattern.

For more information on modifying PKZIP’s default values through the PKZIP Configuration Settings file, see *Chapter 6 - Changing Defaults Using the Configuration File* on page 133.

Excluding Files from Being Compressed

exclude

When you compress files, you might want to exclude specific files from

being compressed or extracted, for example, all files that end in .bmp. To exclude files, use the ***exclude*** option with the ***add*** command, as shown below:

pkzipc -add -exclude="*.bmp" test.zip

In the example above, all files except those that end in the .bmp extension will be compressed.

Furthermore, you might want to exclude a list of files from being compressed or extracted, for example, all files that exist in the list file lst.txt. To exclude files listed in a list file, use the ***exclude*** option with the ***add*** command, as shown below:

pkzipc -add -exclude=@lst.txt test.zip

In the example above, all files except those listed in the lst.txt file will be compressed.

You have the option of specifying a default file pattern setting in your PKZIP Configuration Settings file. If, for example, you want to automatically exclude all files with the extension of .doc in PKZIP compress and extract operations, enter the following:

pkzipc -config -exclude="*.doc"

When you use the ***exclude*** option with the ***configuration*** command, PKZIP prompts you to configure the ***exclude*** default for add *and/or* extract operations. The .doc file pattern will henceforth be excluded by default in compress and/or extract operations.

Compressing Files in a Specific Format

shortname

The ***shortname*** option allows you to convert a file name in *long* file name format to a DOS equivalent *short* (8+3) file name before compressing the file(s). You may specify how you wish files to be compressed by using the ***shortname*** option with one of the following sub-options:

Sub-option:	To:	For example:

dos	Convert file to a DOS-equivalent short file name.	pkzipc -add -short=dos save.zip
os2	Convert file to a OS/2-equivalent short file name.	pkzipc -add -short=os2 save.zip

Note: Windows NT uses the DOS file name from the system but generates an OS/2 file name internally. PKZIP includes sub-options for both OS/2 and DOS because of the differences in the way each operating system handles short file names.

Storing File Information

PKZIP allows you to store specific file attribute/information within your .ZIP file. You can:

Store file attributes, including hidden, system, archive, and read-only.

Store extended file attribute information.

Remove (mask) file attributes.

Refer to the sections that follow for more information.

Compressing Files That Contain Certain Attributes (WIN32, OS/2)

attributes

PKZIP allows you to compress files based on the attributes that they possess. These attributes are usually assigned either by the creator of a file, a system administrator, or by the operating system. The following are attributes you can store:

hidden

system

read only

archive

The default attribute for purposes of compression is "read-only". That is, if you do not use the ***attributes*** option on your command line, "system", "archive" and "hidden" files are not compressed into your .ZIP files. If you do use the ***attributes*** option on your command line but do *not* specify a sub-option, all files, including those that include "hidden", "archive" and "system" attributes, are compressed into your .ZIP files.

To specify a file attribute, you must include it with the ***attributes*** option in your command line. Each attribute is a "value" for the ***attributes*** option. You can:

Specify which file attributes to compress.

Override values in the Configuration file.

Turn off the ***attributes*** option.

The table below lists all of the available sub-options for storing file attribute information:

Sub-Option:	To:	For example:
hidden	Compress files including those that contain the "hidden" file attribute.	pkzipc -add -attributes=hid test.zip
system	Compress files including those that contain the "system" file attribute.	pkzipc -add -attributes=sys test.zip
readonly	Compress files including those that contain the "read-only" file attribute.	pkzipc -add -attributes=read test.zip
archive	Compress files including those that contain the "archive" file attribute.	pkzipc -add -attribute=archive test.zip
all	Compress files including those that contain the hidden, system, or read-only file attribute.	pkzipc -add -attributes=all test.zip
none	Turn off the attributes option in the Configuration file or compress files that do not have any attributes set.	pkzipc -config -attributes=none

You may use a dash (-) before an ***attributes*** sub-option on your command line to exclude files with a specific attribute from being added regardless of the default attributes configuration setting. If, for example, the default attributes configuration setting was set to "all", you could enter the following command line to exclude hidden files from being added to the test.zip file.

pkzipc -add -attributes=-hidden test.zip

Compressing Files Based on File Type (UNIX)

filetype

PKZIP allows you to process files based on a specific file type. Use the ***filetype*** option with the following sub-options to process specific file types:

Sub-Option:	To:	For example:
block	Include/exclude block special files. This would include files with a mode that begins with a "b". (brw-------).	pkzipc -add -filetype=block test.zip /dev/fd*
char	Include/exclude character special files. This would include files with a mode that begins with a "c". (crw-------).	pkzipc -add -filetype=char test.zip /dev/tty*
directory	Include/exclude directory information.	Pkzipc –add –filetype=dir test.zip
hidden	Include/exclude hidden files. This would include filenames that have a dot (.) in the first position of the filename (.profile).	pkzipc -add -filetype=hid test.zip
hlink	Include/exclude "hard" linked files. Hard linked files have a link count greater than one.	pkzipc -add -filetype=hlink test.zip
pipe	Include/exlude pipe files. This would include files with a mode that begins with a "p". (e.g., prwxr-xr-x)	pkzipc -add -filetype=pipe test.zip
regular	Include/exclude regular files. This is the default setting. If no filetype is specified, PKZIP will automatically include/exclude regular files.	pkzipc -add -filetype=regular test.zip
slink	Include/exclude symbolically linked files. This would include files with a mode that begins with a "l". (e.g., lrwxr-xr-x)	pkzipc -add -filetype=slink test.zip
none	Exclude all file types except for those specified on the command line. The none option is typically followed by one or more file types. Only the specified types are included in the .ZIP file. For example, filetype=none,pipe results in only PIPE files being included.	pkzipc -config -filetype=none,slink
all	Include/exclude all file types.	pkzipc -add -filetype=all test.zip

Note: A "-" before a ***filetype*** sub-option tells PKZIP to exclude the specified filetype(s) regardless of the default configuration setting. For example, -filetype=-hidden will exclude hidden files regardless of the default configuration setting.

Following Links (UNIX)

links

PKZIP allows you to follow the UNIX links of a file when compressing files by using the *links* option.

Note: When following links using the link option, the resulting .ZIP archive will be larger since 2 copies of the file data are compressed as though each link is a separate file. You must also use the filetype option with the links command.

Use the ***links*** option with the following sub-options to process specific file types:

Sub-Option:	To:	For example:
slink	Symbolic links will be stored (followed) rather than preserved.	pkzipc -add -links=slink save.zip
hlink	Hard links will be stored (followed) rather than preserved.	pkzipc -add -links=hlink save.zip
none	Symbolic and hard links will be preserved (rather than stored).	pkzipc -add -filetype=hlink –links=none save.zip
all	Symbolic and hard links will be stored (followed).	pkzipc -add -links=all save.zip

Extended Attribute Storage

noextended

When PKZIP adds files to an archive, it automatically stores extended attributes with those files. PKZIP defines extended attributes as those file attributes not defined by the standard FAT file system attributes (Read-Only, Archive, System, Hidden, Volume, Directory). Extended attributes normally represent a characteristic of a file. For example, PKZIP may store the date

and time a file was last modified as an extended attribute.

If, however, you do *not* wish to store or extract extended attribute information, use the ***noextended*** option. The following command line example uses the ***noextended*** option with ***add*** command.

```
pkzipc -add -noextended test.zip readme.doc
```

PKZIP will run and display the following:

```
PKZIP(R)  Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc.  All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off.  Patent No. 5,051,745

♦ Excluding Extended Attributes

Creating .ZIP: test.zip
  Adding File: readme.doc     Deflating    (26.8%), done.
```

Note: The ***noextended*** option does not effect the storage of the offline, temporary, and system attributes on DOS systems. Similarly, the ***noextended*** option does not effect the storage of filetype attributes on UNIX systems.

Extended Attributes and the OS

Extended attributes are automatically added to .ZIP archives when they are created. PKZIP does not display a message indicating that it is saving extended attributes. However, be aware that PKZIP running on a UNIX system stores different extended attributes than PKZIP running on a Win32 system. The following table lists the extended attributes that PKZIP stores relative to the UNIX and Win32 operating systems:

UNIX	Win32
user ID	create time
group ID	last modification time
last modification time	last access time
last access time	
link information	

Note: Typically, PKZIP will automatically extract extended attributes with archived files and/or directories. Consequently, PKZIP will overwrite existing files, directories and extended attributes (EAs) with those files, directories, and extended attributes (EAs) stored in the .ZIP file. It should be noted, however, that extended attribute preservation is dependent on such things as the user's file system privileges as well as the option=suboption (e.g., ***id***, ***permission***, ***times***) specified on the command line or in the configuration file.

Extended Attributes and 204g Compatibility

204

By default, PKZIP does not enable PKZIP for DOS 2.04g compatibility. When 204g compatibility is enabled, extended attribute data is stored in both the Local header and Central header records. This will result in a slightly larger .ZIP file size, but improves the chance that extended attribute information can be recovered if the .ZIP file should become damaged. It also ensures the extended attribute information is always retained if the file is generated with a version of PKZIP other than 2.04g. This option is ignored when extracting. The ***204*** option also limits the number of files that can be added to a .ZIP archive to 16,383. To enable 204g compatibility, use the ***204*** option as in the following example:

```
pkzipc -add -204 test.zip *
```

Removing File Attributes when Compressing (WIN32, OS/2)

mask

By default, PKZIP will compress all normal and read-only files. If, however, you choose to compress files with other attributes (archive, system, hidden) using the ***attribute*** option, you can use the ***mask*** option to remove those same attributes on compression or extraction. The ***mask*** option allows you to retain (or not retain) specific file attributes within that .ZIP file.

The table below lists all of the available sub-options for masking file attribute information:

Sub-Option:	To:	For example:
hidden	Remove the hidden file attribute from files.	pkzipc -add -mask=hidden test.zip *
system	Remove the system file attribute from files.	pkzipc -add -mask=system test.zip *
readonly	Remove the read-only file attribute from files.	pkzipc -add -mask=readonly test.zip *
archive	Remove the archive attribute from the file.	pkzipc -add -mask=archive test.zip *
none	Turn off file masking.	pkzipc -add -mask=none test.zip *
all	Remove all attributes from files.	pkzipc -add -mask=all test.zip *

The mask sub-options can be used on your command line individually or as a comma-separated list.

You may use a dash (-) before a mask sub-option on your command line to preserve a file attribute being added or extracted with a file, regardless of the default mask configuration setting. If, for example, the default mask configuration is set to "all" you could enter the following command line to preserve the hidden attribute associated with those files (with the hidden attribute set) being added to the test.zip file.

pkzipc -add -mask=-hidden test.zip

Note: By default, PKZIP will not mask any file attributes when compressing files. All file attributes will be retained in the .ZIP file. By default, PKZIP will mask all file attributes when extracting files. If file attributes have been stored in a .ZIP archive, they will not be restored upon file extraction.

Including Additional Information in a .ZIP File

With PKZIP, you can include additional information in your .ZIP file, such as a "comment", to identify that .ZIP file.

You can include a:

Text comment.

Password to protect your .ZIP file.

Header comment.

Volume label.

Date for the .ZIP file (other than the creation date).

Refer to the sections that follow for more information.

Including a Text Comment

comment

With PKZIP, you can include a comment for the individual files within a .ZIP file. There are several options for adding comments to your .ZIP files. To include a comment, use the ***comment*** option alone or with the ***add*** command. When you type the command, PKZIP prompts you to enter the comment.

The table below lists the available sub-options for adding comments to your .ZIP archives:

Sub-Option:	To:	For example:
all	Comment all of the files and any new files added.	pkzipc -add -comment=all test.zip *
unchanged	Comment only files existing in the ZIP file that are not either updated or being added.	pkzipc -add -comment=unchanged test.zip *
add	Comment only the new files added.	pkzipc -add -comment=add test.zip *
none	Disable the comment option.	pkzipc -add -comment=none test.zip *
freshen	Comment all of the files updated in the ZIP file.	pkzipc -add -comment=freshen test.zip *
update	Comment all files added and updated in the zip file.	pkzipc -add -comment=update test.zip *

Note: Comment length is limited to 59 characters.

Encrypting Files in a .ZIP File

password

With PKZIP, you can include a password with your .ZIP file to restrict access to that file.

To include a password, use the ***password*** option with the ***add*** command, and do one of the following:

Type the password (preceded by an equal sign) as part of your command. For example:

pkzipc -add -password=<type password here> **test.zip**

If you include the password option only, PKZIP will prompt you to enter a password. For example:

pkzipc -add -password test.zip

When you press ENTER, the following prompt appears:

```
Password?
```

Type your password, which will appear on your screen as asterisks for privacy. Press ENTER to save your password. PKZIP asks you to confirm the password by displaying the following:

```
Re-enter password for verification.
Password?
```

Re-type your password and press ENTER. If the password you enter matches the one you originally entered, PKZIP will start to compress your files and the operating system prompt will appear. If the passwords do not match, PKZIP displays the following:

```
Passwords don't match!  Please try again.
Password?
```

Re-type the correct password.

IMPORTANT: PKWARE has introduced support for the use of strong encryption with .ZIP files. If you plan to share the .ZIP files you create using this strong encryption feature with others, you should first make sure the recipients have a compatible version of PKZIP 6.0 or later so they can decrypt your files. They will also need to have the same encryption level (40 bit or 128 bit), or higher, of the Microsoft encryption software available in

Internet Explorer 4.0, or newer, if they are using Microsoft Windows.

If you are licensed to use the Strong Encryption feature of PKZIP, you can specify which encryption algorithm you want to use. The encryption algorithms that are available will depend on the version of PKZIP and your system configuration (on Windows systems, it may vary with the version of Internet Explorer that is installed). To get a list of the algorithms available, use the ***listcryptalgorithms*** command.

pkzipc –listcryptalgorithms

When you press ENTER, the following appears:

```
AES,256         AES (256-bit)
AES,192         AES (192-bit)
AES,128         AES (128-bit)
3DES,112        3DES (112-bit)
3DES,168        3DES (168-bit)
DES,56          DES
RC2,128         RC2 (128-bit)
RC2,64          RC2 (64-bit)
RC2,40          RC2 (40-bit)
RC4,128         RC4 (128-bit)
RC4,64          RC4 (64-bit)
RC4,40          RC4 (40-bit)
```

The algorithms listed can then be specified using the ***cryptalgorithm*** option when encrypting.

pkzipc –add –password –cryptalgorithm=rc4,128 test.zip

If the cryptalgorithm option is not used, traditional PKWARE encryption will be applied. Traditional PKWARE encryption is widely supported in many other .ZIP utilities including versions of PKZIP prior to version 6.0.

To extract a password protected file, use the ***password*** option with the ***extract*** command.

Type the password (preceded by an equal sign) as part of your command. For example:

pkzipc -extract -password=secret test.zip

If you specified the correct password, the files will be extracted to the current directory. If the password you entered is incorrect, you will see a warning message similar to the following:

```
PKZIP: (W20) Warning! Incorrect password for file: filename.ext
```

Re-type your command line with the correct password.

If you include the password option only, PKZIP will prompt you to enter a password. For example:

pkzipc -extract -password test.zip

When you press ENTER, the following prompt appears:

```
Password?
```

Type your password, which will appear on your screen as asterisks for privacy. Press ENTER. If you specified the correct password, the files will be extracted to the current directory. If the password you entered is incorrect, you will see a warning message similar to the following:

```
PKZIP: (W2O) Warning! Incorrect password for file: filename.ext
```

Retype your command line and when prompted enter the correct password.

Note: Passwords are case sensitive.

Note: On UNIX systems, it may be possible for other users to see your password if it is on the command line. It is strongly recommended you use the prompt form. For information on using passwords in scripts, see *Appendix F* on page 212.

recipient (Win32, UNIX)

In addition to password based encryption, the strong encryption feature of PKZIP also allows you to specify the digital certificates of the people you would like to have access to the files using the ***recipient*** option with the ***add*** command.

To encrypt with a digital certificate, specify the name of the certificate for the person you would like to be able to decrypt it:

pkzipc -add -recipient="name of certificate" **test.zip**

Multiple recipients can be specified by using the ***recipient*** option more than once on the command line. You can also specify files that contain the list of recipients. The recipient option understands two different types of files. The first is similar to the “list files” option in PKZIP. You specify the listfile character before the file name. For this first type, simply put the name of each recipient on a line by itself in a text file.

pkzipc -add -recipient=@<name of file> test.zip

The second type of file it can understand is a PKCS#7 message. This is a

special type of file you can create with Microsoft's Authenticode tools, or other certificate management software, like OpenSSL on UNIX systems. These PKCS#7 files should contain the certificate for each recipient. This method lets you specify exactly which certificate should be used, since multiple certificates can have the same name. If PKZIP finds two certificates with the same name, it will take the first valid (or newest) one it finds. The **listcertificates** option displays certificates in the same order PKZIP will use them. The PKCS#7 file will let you choose the exact certificate unequivocally. You should not place issuer certificates in the PKCS#7 file, only the certificates for the actual recipients. To specify a PKCS#7 file, place a hash (#) character in front of the file name.

pkzipc -add -recipient=#<name of file> test.zip

As with the ***password*** option, the ***cryptalgorithm*** option can be used to specify which encryption method should be used:

pkzipc -add -recipient="name of certificate" **–cryptalgorithm=AES,128 test.zip**

However, unlike with the ***password*** option, if no encryption algorithm is specified, the default will be the first algorithm listed with the ***listcryptalgorithm*** command.

The ***recipient*** option can be used along with the ***password*** option to allow anyone with the private key for one of the certificates specified, or anyone who knows the password, to decrypt the files.

To decrypt files that have been encrypted with the recipient option, simply extract the file on a system with the private key for a digital certificate that was used to encrypt the files with PKZIP 6.0, or later.

pkzipc -extract test.zip

Note: The listcryptalgorithm command and the recipient and cryptalgorithm options are only available in versions of PKZIP that support strong encryption.

Including a Header Comment

header

With PKZIP, you can include a general comment for a .ZIP file. This is called a "header" comment because it appears in the header portion of a .ZIP file. This differs from the ***comment*** option in that the "header" comment applies to the entire .ZIP file, not to individual files within the .ZIP file.

Note: Headers for .ZIP files are limited to 16K in size. PKZIP will automatically truncate headers larger than 16K.

To include a header comment, use the ***header*** option and the comment or comment file with the ***add*** command. PKZIP provides several methods to include the comment. You can:

- Include an existing file as the header. With this method, you type the **header=@filename.ext** option. If there are no spaces in the file name, it is not necessary to use quotation marks. For example:

  pkzipc -add -header=@header.txt test.zip *

- Type the actual comment as part of the command. With this method, you include an equal sign, followed by the comment. If there are no spaces in your comment, it is not necessary to use quotation marks. Our example comment does include spaces so therefore our command line would look like the following:

  pkzipc -add -header="This is the comment" test.zip *

If you include the header option only, PKZIP will prompt you for text you wish to be the header:

```
pkzipc -add -header test.zip *
```

When you press enter, the following prompt appears:

```
Zip Header ?
```

Type your header comment and press ENTER.

Including a Volume Label (WIN32, OS/2)

volume

With PKZIP, you can include a volume label with your .ZIP file. This can be any drive letter, even if it is not the same drive from which the files were compressed. For example, if you compressed files from the C:\ drive, you could store the volume label from your D:\ drive as your volume label.

To include a volume label, use the ***volume*** option with the ***add*** command, as in the following example:

```
pkzipc -add -volume test.zip *.doc
```

The volume label for the current drive will be stored.

If you wish to specify the drive, use the ***volume*** option followed by the drive letter with the ***add*** command, as in the following example:

```
pkzipc -add -volume=a test.zip *.doc
```

Specifying the Date of a .ZIP File

zipdate

When you create a .ZIP file, PKZIP automatically applies the current date as the date of the .ZIP file. However, you can specify a different date for the .ZIP date by using the ***zipdate*** option with the ***add*** command.

PKZIP provides several methods for applying a date to a .ZIP file. The table below lists the available sub-options for applying date information to your .ZIP archives:

Sub-Option:	To use:	For example:
retain	The date that the .ZIP file was created.	pkzipc -add -zipdate=retain test.zip *
none **(Default)**	The current date.	pkzipc -add -zipdate=none test.zip *
oldest	The date of the oldest file within the .ZIP file.	pkzipc -add -zipdate=oldest test.zip *
newest	The date of the newest file within the .ZIP file.	pkzipc -add -zipdate=newest test.zip *

Setting the Compression Level

When PKZIP compresses files, it uses a compression method that provides the best balance of compression and speed. If you want more compression or faster compression, you can change the default method.

PKZIP contains ten levels of compression, with 0 (zero) being no compression at the fastest speed, and 9 being the most compression at the slowest speed. For example, 1 would offer more compression than 0 (zero) but less compression than 2. However, 1 would be faster than 2, and so on.

With PKZIP, you can change the compression level in two ways. You can:

Type an option "and" a number that represents the compression level. (This way contains one word as the option (**level**), and a number that represents the compression level.)

Type an "option" that represents a compression level. Each option represents a compression level and is equivalent to a corresponding "number" in the first method described above (for example, the ***fast*** option is the same as level 2). However, this method contains only "five" levels instead of "ten".

Refer to the sections that follow for more information.

Specifying a Compression Level by Number

level

To change the compression level, you can use the ***level*** option, followed by an equal sign, and a number that represents the compression level. The default compression level is 5 (normal), which is the best balance of compression and speed. If you do not change the compression level, PKZIP uses this level.

For example, if you wish to change the compression level to 2, you could type a command line similar to the following:

```
pkzipc -add -level=2 test.zip *.doc
```

Since ***level*** is an option, it must be used in conjunction with a main command in your PKZIP command line. In this example, since you are compressing files, it is used with the ***add*** command.

Remember that 0 (zero) specifies no compression and therefore the fastest speed, while 9 specifies maximum compression but at the slowest speed. The higher the number, the more compression is increased at the expense of speed. As you lower that number, you get less compression, but an increase in speed. PKZIP compresses your files accordingly, depending on what level you select.

The default compression level is specified in the PKZIP Configuration Settings screen after the listed Compression item. If you wish to change the default compression level, you can do so by using the ***configuration*** option with the ***level*** option. For example, to set your default compression level to 9 (Maximum Compression), enter the following:

```
pkzipc -config -level=9
```

For more information on changing your default settings, see *Chapter 6 - Changing Defaults Using the Configuration File* on page 133.

Specifying a Compression Level by Option

speed, fast, maximum, store, normal

To change the compression level, you can just type a word that represents a compression level. This allows you to include a more descriptive word in your command (instead of an arbitrary number, as highlighted in the previous method). However, keep in mind that using these options offers only "five" levels of compression instead of "ten".

The available options are listed in the following table:

Option:	Level:	For example:
speed	For the "fastest" level of	pkzipc -add -speed test.zip *.doc

	compression (level 1).	
fast	For the "second" fastest level of compression (level 2).	pkzipc -add -fast test.zip *.doc
maximum	For the highest level of compression (level 9).	pkzipc -add -max test.zip *.doc
store	For "no" compression (just store files inside the .ZIP file) (level 0).	pkzipc -add -store test.zip *.doc
normal **(Default)**	For normal compression (best balance of compression and speed) (level 5).	pkzipc -add -norm test.zip *.doc **Note:** You would only need to use this option if you changed your defaults in the Configuration file. Refer to *Chapter 6 - Changing Defaults Using the Configuration File* on page 133 for more information.

Compressing Files with Deflate64™ (Win32, UNIX)

deflate64

With PKZIP, you can now create .ZIP archives using a new compression method, **deflate64**™. Normally PKZIP uses the deflate algorithm to compress files but with the addition of the deflate64™ algorithm, files can now be compressed with a larger dictionary, thus giving improved compression.

Files compressed with the deflate64™ method can be extracted with most 2.5x and later versions of PKZIP. Other .ZIP compatible programs can not extract files compressed with this method.

When using deflate64, you can also specify the level of compression as in the deflate algorithm. By default, level 5 or normal mode is used. For example, to compress the files using deflate64 using fast compression, type the following:

pkzipc -add -deflate64 -fast text.zip *.txt

Compressing Files with BZIP2 (Win32, UNIX)

BZIP2

Compressing files with the BZIP2 algorithm. The 6.0 version of PKZIP introduced the use of the BZIP2 compression algorithm to create compressed .ZIP format files. This feature combines the increased compression that can be achieved using BZIP2 compression, with the familiar and portable .ZIP format. The BZIP2 algorithm, authored by Jason Seward, requires more memory and processing power, but can yield greater compression rates.

Compressing Files Compatible with the Data Compression Library (Win32, UNIX)

dclimplode

With PKZIP, you can now create .ZIP archives that are compatible with the Data Compression Library (DCL) by using the *dclimplode* option. Files that are compressed with this method can be extracted with most 2.5x and later version of PKZIP. Other .ZIP compatible programs cannot extract or test the files compressed with this method.

When using implode, you must specify either ASCII or BINARY, and the size of the dictionary (1024, 2048, or 4096) to be used. In general, the larger the dictionary, the better the compression. The BINARY dictionary should be used for binary (e.g., executable programs) files or when the type of the file is not known the ASCII dictionary should be used when all files are known to be ASCII (text) files.

For example, to compress all the files using DCL implode using the ASCII dictionary, type the following:

```
pkzipc -add -dclimplode=ascii,4096 *.txt text.zip
```

Sorting Files Within a .ZIP File

sort

With PKZIP, you can sort the files within a .ZIP file in several ways. If you do not change the sort order, the files are automatically sorted by the order in which they were compressed into the .ZIP file. This is called the "natural" order.

The ***sort*** option works with the ***add***, ***extract***, ***test***, and ***view*** commands. The value you include with ***sort*** depends on the command you select.

Sub-Option:	To sort by:	For example:
date	File date.	pkzipc -add -sort=date temp.zip
size	Original uncompressed size of the file ("length" in display).	pkzipc -add -sort=size temp.zip
extension	File extension.	pkzipc -add -sort=ext temp.zip
name	File name (alphabetically).	pkzipc -add -sort=name temp.zip
none	No sorting done.	pkzipc -view -sort=none temp.zip
natural **(same as none)**	The order that files exist within a .ZIP file.	pkzipc -view -sort=natural temp.zip
ratio	Ratio of uncompressed size to compressed size.	pkzipc -view -sort=ratio temp.zip **Note:** The ratio sub-option will not work with the add command.
crc	CRC (Cyclic Redundancy Check) number.	pkzipc -view -sort=crc temp.zip **Note:** The crc sub-option will not work with the add command.
comment	File comment.	pkzipc -view -sort=comment temp.zip Note: The comment sub-option will not work with the add command.

If you specify the ***sort*** option on your command line but do not specify a sub-option value, the files will be sorted by file name.

Note: Using the ***sort*** option with the ***add*** command only works on new .ZIP files. It does not work with a .ZIP file being updated.

Moving Files to a .ZIP File

move

Normally, when you compress files, you end up with two copies of each file: the original file and the compressed file. With PKZIP, you can choose to remove the original file "after" you compress it into the .ZIP file.

If you want to move only specific files, you must compress them separately since you can only move all or none of the files that you are compressing.

To move files, use the ***move*** option with the ***add*** command, as shown below:

```
pkzipc -add -move test.zip *.doc
```

In this example, PKZIP will compress all files that end in .doc and will remove them from their original location "after" compression.

> **CAUTION:** Be careful when "moving" files from your hard drive to a .ZIP archive. If the .ZIP archive is subsequently damaged, lost, or deleted, any files contained therein will be damaged, lost, or deleted with it. Regularly back up your .ZIP archives to avoid such problems.

Creating Self-Extracting .ZIP Files

sfx

PKZIP allows you to create self-extracting files. In addition, you can convert existing standard .ZIP files into self-extracting files. A self-extractor is a type of .ZIP file that contains extraction code within the file itself. A self-extracting .ZIP file is an executable file with a .exe file extension (instead of .ZIP). This type of .ZIP file allows the person who is going to extract the file(s) to simply type the name of the file at the command prompt - without using the ***extract*** command. An external program, such as PKZIP, is not necessary to extract files from self-extracting files. For example, if the name of the self-extractor is doc.exe, you could simply type **doc.exe** at the command prompt and press ENTER to extract the files archived in that file.

Depending on whether you are using the Evaluation or Registered version of PKZIP, you can create the following types of self-extractors:

A native self-extractor that works with the Operating System on which PKZIP is running.

Regular DOS: a DOS self-extractor. (Included in the Registered version of PKZIP)

DOS Junior: a smaller, more compact version of the regular DOS self-extractor. This file contains less extraction options than the regular DOS self-extractor, and requires less memory to run. (Included in the Registered version of PKZIP).

Windows 32-Bit: a 32-bit "Windows" self-extractor that works with versions of Windows9x and NT (Intel). This includes long file name support under Windows9x and Windows NT. (Included in the Registered version of PKZIP).

To create a self-extractor, use the ***sfx*** option with the ***add*** command. If you wish to convert a standard .ZIP file to a self-extracting one, use the ***sfx*** option alone. The value you include with ***sfx*** depends on the type of file you wish to create. Subsequent sections in this chapter will more fully describe how to create PKZIP self-extracting files.

Creating a Native Self-Extractor

To create a self-extractor native to the operating system on which you are using PKZIP, use the **sfx** option without a sub-option, as in the following example:

```
pkzipc -add -sfx test *.doc
```

Creating a Regular DOS Self-Extractor

To create a regular DOS self-extractor, use the **dosfull** value with the **sfx** option, as in the following example:

```
pkzipc -add -sfx=dosfull test *.doc
```

Creating a DOS Junior Self-Extractor

To create a DOS junior self-extractor, use the **jrdos** value with the **sfx** option, as in the following example:

```
pkzipc -add -sfx=jrdos test *.doc
```

Creating a Windows 32-Bit Self-Extractor

To create a Windows 32-bit self-extractor, use the **win32** value with the **sfx** option, as in the following example:

```
pkzipc -add -sfx=win32_x86_g test *.doc
```

Available Options in the Native Self-Extractor

Below is a list of PKZIP options that you may use with the native self-extractor:

After, before, console, directories, exclude, extract, filetype (UNIX only) help, id, include, larger, license, links (UNIX ONLY), locale, lowercase, mask, more, nametype (OS/2 ONLY), newer, noextended, older, overwrite, password, permission, print, silent, smaller, sort, test, times, translate, version, volume, and warning.

For example, if you wanted to recreate the directory structure stored within a self-extracting archive called test.exe, you would type the following:

test.exe -directories

Keep in mind that these options are *only* available for the native Self-Extractor and only when the Self-Extractor is being run. These options are *not* available for the DOS or Windows versions of the self-extractor.

Running Programs in the Self-Extractor (Win32, UNIX)

The *runafter* command is used in conjunction when creating a self extractor and allows the person running the self extractor to have a program automatically run after the extraction process. It is only available for 32-bit self extractors (sfx=WIN32_X86_G), command line self-extractors under UNIX and Win32 (sfx=WIN32_X86_C, WIN32_X86_G, AIX4X_PPC_C, HPUX_PAR_C, LNX2X_X86_C, SOL2X_SPC_C), and X Windows System self-extractors (sfx= AIX4X_PPC_G, HPUX_PAR_G, LNX2X_X86_G, SOL2X_SPC_G).

For example, if you wanted to create a self extractor to open a readme.txt file after extraction, you would type the following:

pkzipc -add -sfx -runafter="notepad.exe readme.txt" test.exe *

For example, if you wanted to create a self extractor to open a file via the associated application, you would type the following:

pkzipc -add -sfx -runafter="${}readme.txt" test.exe *

For example, if you wanted to create a self extractor to run an install script, you would type the following:

pkzipc -add -sfx -runafter="${install}install.inf" test.exe *

For example, if you wanted to create a self extractor to run an install script, with the full path pre-appended (%0) you would type the following:

pkzipc -add -sfx -runafter="${install}%0install.inf" test.exe *

Differences between a Regular DOS and DOS Junior Self-Extractor

Self-extracting files (.exe) are larger than the corresponding regular .ZIP file because of the extraction code that is included. The main difference between a "regular" and a "junior" DOS self-extractor is that the junior is smaller, and contains fewer available options.

Converting a .ZIP file to a Self-Extracting file

If you wish to convert an existing .ZIP file to a self-extracting file, use the ***sfx***

option in your command line. Additionally, the ***sfx*** option can be used to update existing self-extracting files. For example, if you wish to convert a file called test.zip into a self-extracting file called test.exe, enter the following on your command line:

```
pkzipc -sfx test.zip
```

If you use the *sfx* option in this fashion, you will not be able to rename the file. PKZIP will take the original file name and only change the file extension from .ZIP to .exe. However, if you wish to specify a file name for the converted self-extracting file, you can use the *namesfx* option to do so. For example, if you wish to convert a file called test.zip into a self-extracting file called test123.exe, enter the following on your command line:

```
pkzipc -sfx -namesfx=test123.exe test.zip
```

Note: It is not important to include the .exe extension with the new file name.

Compressing Files to Diskette

With PKZIP, you can save your .ZIP file or self-extracting file to a diskette while you create it (instead of saving it on your hard disk drive). You can also create split files (archives split into smaller pieces) to your local computer drive. Or you can also have your removable media formatted or wiped (files removed) before writing to the media.

Depending on the size of the .ZIP file, it may be necessary for PKZIP to save the file on multiple diskettes. This process is called "spanning". PKZIP automatically handles spanning by prompting you for an extra diskette (or other medium).

To compress files to diskette:

1. Insert a diskette (or other appropriate medium) into your disk drive.

2. Type your PKZIP command, and press ENTER. Make sure to specify the drive letter or path that corresponds to your destination drive. A sample command line appears below:

```
pkzipc -add a:\test.zip *.doc
```

Note: Because PKZIP automatically detects removable media and therefore handles spanning automatically, it is not necessary to use an option with the add command. However, if PKZIP is unable to detect the fact that you are placing your .ZIP file on removable media, you can force spanning with the ***span*** option. There is a complete description of the ***span*** option on page 171.

To create a split archive to either your computer disk, specify a size (in bytes or a predetermined size) with the span argument. The following predefined values are defined:

- **160 (160,256 bytes)**
- **180 (179,712 bytes)**
- **320 (322,560 bytes)**

- **360 (362,496 bytes)**
- **650 (681,574,400 bytes) - Suitable for CD-ROM media**
- **700 (734,003,200 bytes) - Suitable for CD-ROM media**
- **720 (730,112 bytes)**
- **95.7 (100,431,872 bytes) - Suitable for a ZIP drive**
- **1.2 (1,213,952 bytes) - Suitable for 5.25" floppy**
- **1.44 (1,457,664 bytes) - Suitable for 3.5" floppy**
- **1.68 (1,862,505 bytes)**
- **2.88 (2,915,328 bytes)**
- **20.8 (21,811,200 bytes)**

For example, to create a split archive of size 1.44 Mb to your local system, type the following command:

```
pkzipc -add -span=1.44 c:\test.zip *.doc
```

To format or wipe removable media automatically, use the *span* command with either format or wipe. For example, to format the media prior to creating a zip archive, type the following command:

```
pkzipc -add -span=format a:\test.zip *.doc
```

UNIX:

When creating spanned archives under UNIX, the **span** and **device** options are required. The **device** option is required for both creating and extracting spanned archives to specify the device. The **span** option does not support any sub-options when creating a spanned archive.

Spanned archives can only be created onto 3.5”, 1.44MB DOS formatted diskettes. However, you can extract archives from other diskette sizes. When creating a spanned archive, PKZIP does a partial format of the diskette, to ensure that it is fully formatted, and that no other files exist. PKZIP will display a prompt asking to proceed before formatting if files exist

on a diskette.

Spanned archives cannot be created on mounted media. If your system automatically mounts your diskette when you place it into the drive, you must disable the auto-mount feature before attempting to create a spanned archive. You may also need to set appropriate write permissions on the diskette device. We suggest setting write access to the device for a specific group and placing users who are allowed to create spanned floppies into this group.

To create a spanned archive called test.zip onto diskette device /dev/fd0, type:

```
pkzipc -add -span -device=/dev/fd0 test.zip *.txt
```

To test a spanned archive called test.zip on diskette device /dev/fd0, type:

```
pkzipc -test -device=/dev/fd0 test.zip
```

PKZIP can read files in specific directories on the diskette, for example:

```
pkzipc -test -device=/dev/fd0 mydir/test.zip
```

You can use any character that is valid for a Windows 95 filename, including spaces and long filenames, when creating spanned archives. However, some characters may need to be escaped from the shell, for example:

```
pkzipc -add -span -device=/dev/fd0 “My Long Filename Archive.Zip" *.txt
```

Compressing Files using Digital Signatures (WIN32, UNIX)

PKZIP allows you to digitally sign the individual files archived in a .ZIP file (as well as the Central Directory) and subsequently authenticate those files upon extraction. PKZIP signing functionality is based on the X.509 certificate standard and is therefore compatible with authenticity functionality in other applications such as Microsoft's Internet Explorer. Signing a .ZIP file allows you to detect whether a .ZIP file's integrity has been compromised. Before configuring PKZIP to sign files, you must first have a digital certificate to use for signing. Digital certificates are available from a variety of certificate authorities. Visit our web site for information on obtaining a certificate:

http://www.pkware.com/catalog/certificate.htm

Furthermore, assuming you have the tools to do it, you may generate your own X.509 self–signed certificate. However, the user verifying your .ZIP file's integrity, must have the appropriate certificate installed on her/his PC as well as the appropriate level of trust specified for that certificate. Please refer to the MS (Internet) Explorer/Outlook online help for detailed information on using digital signatures.

Note: PKZIP currently supports Level or Class One certificates (otherwise known as "email" or "personal" certificates). These certificates must be a minimum of 1024-bit RSA format. The digital certificate must also have a private key.

Installation Notes (WIN32):

1. If you have installed a certificate using Netscape (v4.6 or greater) and you cannot access it within PKZIP, make sure you have exported the certificate within Netscape. Exporting a digital certificate allows the certificate to be accessible outside of Netscape. After the certificate is exported, it must also be installed (usually by double-clicking on the file via Explorer).

2. When you install a certificate on your system, the level of security configured can affect what you may see when compressing files with digital certificates. The level of security, either low, medium, or high,

determines what type of notification you may see when your private key is accessed by an application. Since PKZIP uses your private key to sign a file, you may receive additional prompts or dialogs when signing a file. If you selected low security, PKZIP will be allowed to access your private key as needed with no additional prompts or dialogs. If you use medium security (the default), you will receive an additional notification dialog each time you access the private key. If you use high security, you will be prompted to enter the password (the one entered when the certificate was installed on your computer) before the certificate can be used.

Installation Notes (UNIX):

Installing the ROOT, CA and SPC certificates:

The first thing you must do, if you want to verify signatures or sign .ZIP files is to install the ROOT and CA certificates. You might also want to include the SPC certificates, if any. To accomplish this, we suggest using the authenticode tools from Microsoft on a Windows computer with Internet Explorer 4 or better installed. If you do not already have these tools, Microsoft has them on their website.

If you have Internet Explorer 4 installed, visit the following URL:

http://msdn.microsoft.com/MSDN-FILES/027/000/218/codesign.exe

If you have Internet Explorer 5 installed, visit this URL instead:

http://msdn.microsoft.com/MSDN-FILES/027/000/219/codesign.exe

If you have IE 6, you will need to download Microsoft's ActiveX SDK to obtain the authenticode tools.

Unfortunately, no one has provided tools to obtain these certificates from other systems, such as Netscape running on your UNIX system.

1. Run the following commands (on the windows computer):

   certmgr –add -7 –all –s Root Root.p7

   certmgr –add -7 –all –s CA CA.p7

   certmgr –add -7 –all –s SPC SPC.p7

2. Transfer those 3 files to your home directory on the target UNIX system.

3. Become the superuser (root, use the su command).

4. Create the following directories:
   /usr/local/certificates
   /usr/local/certificates/CA
   /usr/local/certificates/ROOT
   /usr/local/certificates/SPC

5. Copy the p7 files to the appropriate directories:

   cp CA.p7 /usr/local/certificates/CA

   cp Root.p7 /usr/local/certificates/ROOT

   cp SPC.p7 /usr/local/certificates/SPC

6. Make sure the files and directories have read-only access.

   chmod -R 0555 /usr/local/certificates

7. Exit the superuser shell.

   exit

Note: If you are not an administrator, try to get your system administrator to do this for you. If the sysadmin is unwilling, you can instead create the directories in your home directory. For example, if your home directory is /home/todd, you create the following directories:

/home/todd/certificates
/home/todd/certificates/CA
/home/todd/certificates/ROOT
/home/todd/certificates/SPC

After you have created those directories, you need to set some environment variables. Users of sh based shells (sh, ksh, bash, zsh, etc.) would run the following commands:

```
ROOT_CERTIFICATES=/home/todd/certificates/ROOT

export ROOT_CERTIFICATES

CA_CERTIFICATES=/home/todd/certificates/CA

export CA_CERTIFICATES

SPC_CERTIFICATES=/home/todd/certificates/SPC

export SPC_CERTIFICATES
```

Users of csh or tcsh would run:

```
setenv ROOT_CERTIFICATES /home/todd/certificates/ROOT

setenv CA_CERTIFICATES /home/todd/certificates/CA

setenv SPC_CERTIFICATES /home/todd/certificates/SPC
```

You can put those commands your login file (.profile for sh users, .cshrc for csh users) to always have them available when you log in.

Installing Personal certificates:

After the Root, CA, and SPC certificates are installed you can verify signatures, in most cases. If you wish to sign files, you need to transfer your personal certificates to the UNIX system, or place the certificate in the appropriate place.

1. Export the certificate from within the web browser (Internet Explorer or Netscape) on the system it is saved. Exporting a digital certificate allows the certificate to be accessible outside of the web browser. Save the file as a .p12 or .pfx file
2. Create a directory in your home directory on the UNIX system, called .certificates. Make sure this directory gives access only to yourself.

   ```
   chmod 0700 .certificates
   ```

3. Transfer your .p12 and/or .pfx files to your UNIX system account, into the .certificates directory.

4. On the UNIX system account, make sure the certificate file is read-only.

```
chmod 0400 .certificates/*.p12
chmod 0400 .certificates/*.pfx
```

certificate

With PKZIP, you can choose to compress files with a digital signature. To do this, use the ***certificate*** option, followed by an equal sign and the name of the certificate, as shown below:

```
pkzipc -add -certificate="My Cert" test.zip *.*
```

In this example, the files compressed will be signed using the certificate "My Cert". By default, both the local file and central directory will be signed (refer to the sign option) using the SHA-1 hash method (refer to the hash option).

hash

Use the *hash* in conjunction with the *certificate* option to specify the digital method/algorithm. You can choose between the SHA-1 (s) and MD5 (m) methods. To use this option, specify hash, followed by an equal sign and either SHA-1 or MD5, as shown below:

```
pkzipc -add -certificate="My Cert" -hash=md5 test.zip *.*
```

In this example, the files compressed will be signed using the certificate "My Cert". By default, both the local file and central directory will be signed (refer to the sign option) using the MD5 hash method .

sign

Use the *sign* in conjunction with the *certificate* option to specify the what should be digitally signed. You can choose between the central directory, the file or both. To use this option, specify sign, followed by an equal sign and either cd (for central directory), files, or all as shown below:

```
pkzipc -add -certificate="My Cert" -hash=md5 -sign=all test.zip *.*
```

In this example, the files compressed will be signed using the certificate "My Cert". Both the local file and central directory will be signed using the MD5

hash method .

listcertificates

Use the listcertificates option to display a list of valid certificates. To use this option, specify listcertificates with no options as shown below:

pkzipc -listcertificates

If digital certificates have been installed, a list of available certificates will be displayed. If no valid certificates exist, the message "No certificates were found on this system" will be displayed.

Compressing Files using PKWARE Authenticity Verification (WIN32, UNIX)

PKZIP allows you to embed an electronic signature with files stored in a .ZIP archive and subsequently authenticate those files upon extraction. PKWARE Authenticity Verification (i.e., PKWARE AV) information allows you to detect whether a .ZIP file's been compromised. To electronically sign your .ZIP file, you must first obtain and configure PKWARE AV information.

1. If you have already applied for and received AV serial numbers, proceed to step 3. If you have not, complete the Application for Authenticity Verification (authveri.txt) found in the PKZIP for Windows installation directory. You may also access the application via the web at the following URL:

   http://www.pkware.com/authenticity/

2. Complete your application via the aforementioned web address or fax (414-354-8559) your completed application to PKWARE. PKWARE will process your application and send you a confirmation message via the United States Postal Service or FAX containing two (2) serial numbers. These serial numbers are required to configure PKLZIP for Authenticity Verification.

3. After you receive your AV confirmation message, open a MS-DOS Prompt Window and change to the PKZIP installation directory. Run the putav.exe program. For example:

   C:\program files\pkware\pkzipc> putav

   After pressing ENTER, you will be prompted to enter your company name and the two (2) serial numbers as they appear in the confirmation message you received from PKWARE. You must enter your company name and the two serial numbers exactly as they appear in the confirmation message. The check value displayed on your screen should match the check value specified in your confirmation message. If they do no match, repeat step 3.

You may include additional information (e.g., telephone number, address) with your AV string by placing an ASCII text file (containing this additional information) named avextra.txt in the current working directory. Likewise,

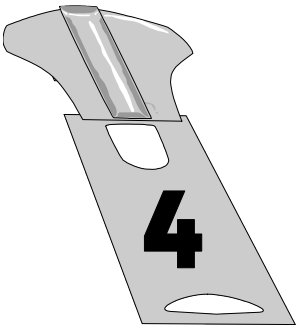
this information will be displayed when files are extracted from (or tested in) a. ZIP file. To access this file from a directory other than the current working directory, you may optionally set the following environment variable:

SET PKAVEXTRA=<path to avextra.txt file>

On Windows 9x systems, this variable may be set in the autoexec.bat file. On Windows NT 4 systems, this variable is set through the control panel.

To compress files with AV information, you must use the sub-option '-authenticity' to force PKWARE Authenticity Verification information. An example follows:

pkzipc -add -auth test.zip *.doc



Extracting Files

Overview:

This chapter contains information on extracting files, including all the commands and options that make data extraction more flexible.

Sections in This Chapter:

Introduction

PKZIP offers several options for extracting files from .ZIP archives, giving the user full control over the files stored in a PKZIP archive. This chapter contains all the information you need to use PKZIP's comprehensive extraction features.

Conventions in This Chapter

In some of the headings in this chapter, a word appears immediately below the heading. That word represents the actual command or option you would type in your PKZIP command (and in many cases, a value or sub-option in addition to the command (e.g., ***extract=all***)). If the text under the heading is the command followed by an equal sign and another word, it means that the other word is a value (sub-option) that goes with the command.

Default Values for Commands and Options

For each extraction task in this chapter, the command or option that represents that task contains a default value. A default value represents the action that occurs when only the name of the command or option is included in your PKZIP command. For example, the default for the ***extract*** command is to unzip or uncompress "all" files in an archive.

For commands and options that contain defaults, these defaults are stored in the PKZIP Configuration Options file. You can "change" defaults by editing this file with PKZIP. Refer to *Chapter 6 - Changing Defaults Using the Configuration File* on page 133 for more information.

Extracting New and Existing Files

When you extract files from a .ZIP file, you can select those files you wish to extract and those you do not. If the directory into which you extract the files contains files that have the same name as those being extracted, you have to decide if you want to overwrite those files.

PKZIP provides several methods that allow you to determine which files to extract. You can extract:

All files in a .ZIP file.

Files that are "newer" than files with the same name in the extract directory "and" files that do not appear in the extract directory.

Only files that are "newer" than the files with the same name in the extract directory.

Refer to the sections that follow for more information.

Extracting All Files From a .ZIP File

extract

To extract all files from a .ZIP file, type ***pkzipc -extract*** and the name of your .ZIP file, as shown below:

```
pkzipc -extract test.zip
```

In this example, all files in the .ZIP archive will be extracted into the current directory.

Overriding Default Files to Extract

extract=all

With PKZIP, you can set up default files to extract. For example, if you always (or usually) extract .doc files, you can set up PKZIP to automatically extract those files, without specifying those files in your command. Refer to *Chapter 6 - Changing Defaults Using the Configuration File* on page 133 for more information.

To override defaults to extract all files from a .ZIP file, you can use the ***all*** value with the ***extract*** command, as shown below:

```
pkzipc -extract=all test.zip
```

In this command, you do not have to specify the files to extract because you are extracting all files. In addition, the default that is set up in the Configuration file still applies. The ***all*** value only overrides the default for this instance only.

Extracting Newer Versions of Existing Files and New Files

extract=update

PKZIP allows you to extract files contained in a .ZIP archive that are newer versions of files than those that already exist in the extract directory. For example, if you have a file called apples.doc in the extract directory, but a newer version in the .ZIP file, you can overwrite the older version with the newer version using the ***update*** sub-option.

The following example uses the ***update*** sub-option with the ***extract*** command:

```
pkzipc -extract=update test.zip
```

When the ***update*** sub-option is used, the files specified for extraction in the .ZIP file will be compared against the files already present in the extraction directory. If PKZIP determines that the file(s) to be extracted are older than the same file(s) that already exist in the extraction directory, PKZIP will not extract the file(s). Additionally, any file(s) that exist in the .ZIP file but not in the extract directory are automatically extracted to the extract directory.

Extracting Only Newer Versions of Files

extract=freshen

To extract only those files in destination directory that have changed, use the ***freshen*** sub-option with the ***extract*** command, as shown below:

```
pkzipc -extract=freshen test.zip
```

When you use ***freshen*** sub-option with the ***extract*** option, only those files in the .ZIP file which already exist in the extract directory, and that have a file modification date newer than the files already in the extract directory, will be extracted from the .ZIP file.

Extracting Files Based on Some Criteria

after, newer, before, older, larger, smaller, include, exclude

With PKZIP, you can extract files based on certain criteria. You can extract:

Files that are newer than a specified date or number of days.

Files that are older than a specified date or number of days.

All files that are larger than a specified size.

All files that are smaller than a specified size.

All files of a specific pattern.

All files "except" those specified.

Refer to the sections that follow for more information.

Extracting Files Newer Than a Specified Date

after

With PKZIP, you can choose to add or extract only those files that are newer or equal to a specified date. To do this, use the ***after*** option, followed by an equal sign and the date, as shown below:

```
pkzipc -extract -after=062495 test.zip
```

In this example, only files that contain a date newer than or equal to June 24, 1995 will be extracted.

With PKZIP, you can enter dates in the following formats:

mmddyy

mmddyyyy

This order in which you type the month, day, and year depends on your ***locale*** setting. For more information on the ***locale*** setting, see *Chapter 7 - Command Characteristics* on page 140.

newer (Win32, UNIX)

With PKZIP, you can choose to extract only files that are newer than a specified number of days. To do this, use the ***newer*** option, followed by an equal sign and the number of days, as shown below:

```
pkzipc -extract -newer=5 test.zip *
```

In this example, only files that have been modified in the past 5 days will be extracted.

Extracting Files Older Than a Specified Date

before

With PKZIP, you can choose to add or extract only those files that are older than a specified date. To do this, use the ***before*** option, followed by an equal sign and the date, as shown below:

```
pkzipc -extract -before=062495 test.zip
```

In this example, only files that contain a date older than June 24, 1995 will be extracted.

With PKZIP, you can enter dates in the following formats:

mmddyy

mmddyyyy

This order in which you type the month, day, and year depends on your ***locale*** setting. For more information on the ***locale*** setting, see *Chapter 7-*

Command Characteristics on page 140.

older (Win32, UNIX)

With PKZIP, you can choose to extract only files that are older than a specified number of days. To do this, use the ***older*** option, followed by an equal sign and the number of days, as shown below:

```
pkzipc -extract -older=5 test.zip *
```

In this example, only files that have been modified more than 5 days prior to the current date will be extracted.

Extracting Files Larger or Smaller than a Specified Size

larger

With PKZIP, you can choose to extract only files that are larger (in bytes) than a specified size. To do this, use the ***larger*** option, followed by an equal sign and the size, as shown below:

```
pkzipc -extract -larger=5000 test.zip *
```

In this example, only files that are larger than 5000 bytes will be extracted.

smaller

With PKZIP, you can choose to extract only files that are smaller (in bytes) than a specified size. To do this, use the ***smaller*** option, followed by an equal sign and the size, as shown below:

```
pkzipc -extract -smaller=5000 test.zip *
```

In this example, only files that are smaller than 5000 bytes will be extracted.

Including Files That Match a Pattern

include

PKZIP allows you to add or extract files that match a specific pattern, for

example, all files that end in the .doc extension.

To extract files that match a pattern, simply include the pattern after the ***extract*** command, as in the following example:

pkzipc -extract test.zip "*.doc"

You have the option of specifying a default file pattern setting in your PKZIP Configuration file. If, for example, you want to automatically include all files with the extension of .doc in PKZIP compress and extract operations, enter the following:

pkzipc -config -include="*.doc"

When you use the ***include*** option with the ***configuration*** command, PKZIP prompts you to configure the ***include*** default for add *and/or* extract operations. The .doc file pattern will henceforth be included by default in compress and/or extract operations.

If you set up a default pattern in your Configuration file, but want to specify a different pattern for this instance only (for example, extract all files that end in .txt), use the ***include*** option, followed by an equal sign, then the file pattern, as in the example below:

pkzipc -extract -include="*.txt" test.zip

If you do not set a default for ***include*** in the Configuration file, you do not have to specify the ***include*** option in your command, only the file pattern. However, if you specify both an ***include*** value as well as a file pattern, both are used in the file extraction process.

Excluding Files from Being Extracted

exclude

When you extract files, you might want to exclude specific files from being extracted, for example, all files that end in .bmp. To exclude files, use the ***exclude*** option with the ***extract*** command, as shown below:

pkzipc -extract -exclude="*.bmp" test.zip

In the example above, all files except those that end in the .bmp extension will be extracted.

You have the option of specifying a default file pattern setting in your PKZIP Configuration file. If, for example, you want to automatically exclude all files with the extension of .doc in PKZIP compress and extract operations, enter the following:

```
pkzipc -config -exclude=”*.doc”
```

When you use the ***exclude*** option with the ***configuration*** command, PKZIP prompts you to configure the exclude default for add *and/or* extract operations. The .doc file pattern will henceforth be excluded by default in compress and/or extract operations.

Extracting Files in Lower Case

lowercase (WIN32, UNIX)

The ***lowercase*** option allows you to extract files in lower case regardless of how the file name was originally archived. To force the file names to be extracted in lowercase, use the following example:

```
pkzipc -extract -lowercase test.zip
```

Preserving File Times

times (WIN32, UNIX)

The *times* option allows you to preserve the access, creation and modification times of the extracted files. Specify the sub option *all* to preserve all times, use *access* to preserve the access times only, use *modify* to restore the time of last modification times or *create* to restore the creation times.

To preserve all the file times, use the following example:

```
pkzipc -extract -times=all  test.zip
```

Note: On UNIX systems, no creation time is preserved, as most UNIX file systems do not track when a file was created.

Translating End of Line Sequence

translate (WIN32, UNIX)

The *translate* option allows you to translate the carriage return/new line sequence end of line characters to another platform sequence. Specify the sub option *dos* to translate each text line to the DOS standand

(return/newline), specify *mac* to translate it to the MacOS standard (single carriage return) or *UNIX* to translate it to the UNIX standard (single newline)

To translate the text lines of an archive to UNIX, use the following example:

pkzipc -extract -translate=UNIX test.zip

Extracting Files in a Specific Format (OS/2)

nametype

The ***nametype*** option allows you to extract files in a specific format such as Long File Name or 8+3. You may specify how you wish files to be extracted by using the ***nametype*** option along with one of the sub-options listed in the table that follows:

Sub-Option:	Description:	For example:
auto	PKZIP will attempt to Auto-Detect the file system where the file(s) will be extracted. File(s) will be extracted accordingly.	pkzipc –extract -nametype=auto test.zip /temp
short	File(s) will be extracted in the short, or 8+3 naming convention.	pkzipc –extract -nametype=short test.zip /temp
long	File(s) will be extracted in the same format as they were in when originally added to the .ZIP file. This includes files in the Long File Name format.	pkzipc –extract -nametype=long test.zip /temp

Keep in mind that PKZIP may not be able to extract files in the specified ***nametype*** format. The extraction format is greatly dependent on such things as the originating or destination PC's file system. If, for example, the originating PC's file system supports Long File Names but the destination PC's file system does not, you may get an error or the file name may be automatically truncated, regardless if you use the **long** sub-option.

Note: If the ***nametype*** option is not specified on the command line, PKZIP will attempt to auto-detect the file system by default. If, however, you *do* specify the ***nametype*** option on your command line, but do not specify a sub-option, files will be extracted with short file names

Determining How to Handle Overwriting Files

overwrite

When you extract files from a .ZIP file, you might be extracting those files into a directory that already contains a copy (or version) of those files. For more control in determining whether or not to overwrite duplicate files with the corresponding "extracted" files, use the ***overwrite*** option with the ***extract*** command. PKZIP provides three methods for using the ***overwrite*** option.

The available sub-options are listed in the table that follows.

Sub-Option:	Description:	For example:
prompt	PKZIP will prompt you to overwrite a duplicate file before proceeding.	pkzipc -extract -overwrite=prompt test.zip *.bmp
never	PKZIP will not overwrite any duplicate files.	pkzipc -extract -overwrite=never test.zip *.bmp
all	PKZIP will overwrite all duplicate files. You will not be prompted.	pkzipc -extract -overwrite=all test.zip *.bmp

Note: If you use the ***extract*** option *alone* without the ***overwrite*** option, you will be prompted to overwrite duplicate files. If, however, you use the ***extract*** option as well as the ***overwrite*** option but do *not* specify a sub-option, PKZIP will automatically overwrite all files without prompting you.

Retaining Directory Structure while Extracting

directories

If you stored directory path information within a .ZIP file, you can re-create those directory paths when you extract the files. For example, if you compressed a file called apples.doc in the temp/fruit directory, and you stored temp/fruit you can re-create temp/fruit in the location in which you extract the files.

To re-create directories, use the ***directories*** option with the ***extract*** command, as in the following example:

```
pkzipc -extract -directories test.zip
```

When you use this command, all directories that were stored in the .ZIP file will be retained during extraction. The directory path stored is appended to the directory in which you extract the files. For example, if your extract directory is /doc, and a directory path stored with the files is temp/fruit, the files would now be extracted to /doc/temp/fruit.

Sorting Files in the Extract Directory

sort

PKZIP allows you to specify the sort order of files that are compressed in a .ZIP file or extracted into a destination directory. For example, if you wish to extract files in a specified sort order (by date), you would type the following and press ENTER:

```
pkzipc -extract -sort=date test.zip
```

In this example, all files that exist in the test.zip file are extracted into the current directory sorted in ascending order by date. For further information on the available sort options, see page 170, the online help, or the section on page 79.

Extracting Files Only for Display

console

PKZIP gives you the option of displaying specific files contained in a .ZIP file to your computer monitor. For example, if you wish to view the contents of all of the .txt files contained in a .ZIP file, type the following and press ENTER:

```
pkzipc -console test.zip *.txt
```

In this example, all files with a .txt extension that exist in the test.zip are displayed on the monitor. Since many .ZIP files contain an information

document (e.g., readme.txt), the ***console*** option is a good way to determine the contents of a .ZIP file without requiring you to extract a file or file(s) to your hard drive.

Note: You can also use the **console** and **silent** options to redirect files to pipe files directly to another program on UNIX and Windows NT based systems.

Extracting Files with a LIST File

The file format of a LIST file used to extract or exclude certain files is somewhat different than the format used to include files. When compressing files, the LIST file needs to be in a format that the operating system can understand. For example, in DOS based command lines, it may be necessary to specify a drive letter when compressing files. By contrast, when extracting or excluding files, a drive letter is not necessary and therefore cannot be used in LIST files.

A LIST file may contain wild card specifications (*,?) as well as exact file names and paths. An example of a LIST file used in extract operations follows:

```
*.exe
*.doc
temp/readme.doc
temp/?????.*
text/news.txt
```

Using the @ character in your command line, you can point to the LIST file. Assume that the LIST file is called lst.txt and is located in your current directory. An example of such a command line follows:

```
pkzipc -extract test.zip @lst.txt
```

In the example above, PKZIP extracts files from test.zip using file information it retrieves from a file called lst.txt, located in the current directory. It is important that the file format contained in the LIST file matches the format of the files in the test.zip file. For example, if test.zip contains no path information, specifying **text/news.txt** in your LIST file will *not* extract the file **news.txt** from the test.zip file. See the section on page 54 for more information on LIST files. For information on viewing the files as they appear in the .ZIP file, refer to the *Viewing the Contents of a .ZIP File* section on page 120.

Digital Signatures (WIN32, UNIX)

This version of PKZIP allows you to authenticate .ZIP files created with the standard X.509 based Digital Certificate information. You can also use PKWARE Authenticity Verification information to sign archives (see next section). Digitally signing a file allows you to test a file to determine if the archive is from a reliable source. This will ensure that the file is from a reliable source and can help prevent virus programs from damaging your computer. It is advised that if a file contains digital signatures, you should test the file before extracting files. The testing determines whether the file has been modified since the original person created it. If the archive was modified, its authenticity has been compromised and you may not want to extract the files to your computer. The authenticity of an archive can also be determined when files are extracted.

Signatures and certificates can be determined to be valid or invalid for each file and/or the central directory. The following table illustrates the warning messages that can be displayed when testing or extracting files from an archive.

Message	Explanation	What to do?
Signature is invalid	Indicates the archive has been changed after it was signed (usually by someone who is not using a digital signature). The archive may be corrupt.	You may want to try to obtain the file again (i.e., download the file again from the web site). Contact the archive creator as the file/archive has been compromised. If the file was downloaded from a web site, you may want to contact a person at that company about the file. If a file has an invalid signature, then the file may have been modified. If the central directory has an invalid signature, then file(s) have been modified, added or deleted from the archive (not by the creator of the file).
Certificate is not trusted	Indicates the certificate is currently not to be trusted.	This message indicates that the certificate is not to be trusted but the archive may not necessarily be compromised. Contact the issuer of the certificate to validate the certificate/signature.
Certificate is expired	Indicates the certificate has expired (i.e., the archive was signed a long time ago).	Contact the owner of the certificate. This message indicates that the certificate is not to be trusted but the file/archive may not necessarily be compromised.
Certificate is revoked	Indicates the issuer has revoked the certificate.	Contact the issuer or owner of the certificate. This message indicates that the certificate is not to be trusted but the file/archive may not necessarily be compromised.
Certificate not found: XXX	Indicates that the certificate (with the name listed) could not be found on your system.	Check to see if the certificate name was misspelled. Be certain that the certificate exists on the system (for example check output of pkzipc or use PKZIP Explorer).

PKWARE Authenticity Verification (WIN32, UNIX)

When extracting files that were originally compressed with AV information the following output is displayed:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745

Extracting files from .ZIP: test.zip

    Inflating: file1.dat   -AV
    Inflating: file2.dat   -AV

Authentic files Verified!
# XYZ123   Vandelay Industries
```

Performing Miscellaneous Tasks on .ZIP Files

Overview:

This chapter contains information on additional tasks that you can perform on .ZIP files. The options discussed in this chapter are not as commonly used as the options discussed in previous chapters, but useful nonetheless.

Sections in This Chapter:

Introduction

PKZIP offers several miscellaneous tasks you can perform on .ZIP files. You can:

View the contents of a .ZIP file.

Print files contained in a .ZIP file.

Test the integrity of a .ZIP file.

Previewing command and option operations.

Fix a corrupt .ZIP file.

Refer to the sections that follow for more information.

Viewing the Contents of a .ZIP File

view

PKZIP allows you to view the contents of a .ZIP file, without performing any action on that .ZIP file (for example, compress or extract). To view a .ZIP file, use the ***view*** option with PKZIP, as in the following example:

```
pkzipc -view test.zip
```

When you type this command, information similar to the following appears:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745

Viewing .ZIP: test.zip

  Length Method     Size  Ratio    Date     Time   CRC-32  Attr   Name
  ------ ------     ----  -----    ----     ----   ------  ----   ----
   8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  red.txt
   8369B DeflatN    3084B 63.2% 06/01/2001  4:50a 87b3c388 -a-w-  tan.txt
  ------           ------ -----                                   ----
    16KB            6168B 63.2%                                      2
```

Note: The above ***view*** list was generated from a DOS command line. In a UNIX ***view*** listing, the "Attr " column would be replaced by an attributes "Mode " column.

PKZIP also provides two additional methods for displaying information from a .ZIP file. Specify the desired method as a value in addition to the ***view*** option. These methods include:

brief - a compact, less informative view of the .ZIP file.

detail - more information than the default view.

Displaying a Brief View of a .ZIP File

To display a more compact (brief) view of a .ZIP file, use the ***brief*** value with the ***view*** option, as in the following example:

pkzipc -view=brief test.zip

When you press ENTER, information similar to the following appears:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745

Viewing .ZIP: test.zip

  Length Method     Size  Ratio    Date     Time  Name
  ------ ------     ----  -----    ----     ----  ----
   8369B DeflatN    3084B 63.2% 06/01/2001  4:50a red.txt
   8369B DeflatN    3084B 63.2% 06/01/2001  4:50a tan.txt
  ------           ------ -----                  ----
    16KB            6168B 63.2%                     2
```

Displaying a Detailed View of the .ZIP File

To display a more detailed view of a .ZIP file, use the ***details*** value with the ***view*** option, as in the following example:

```
pkzipc -view=details test.zip
```

When you press ENTER, information similar to the following appears:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745

Viewing .ZIP: test.zip


          FileName: red.txt
          FileType: text
        Attributes: -a-w--------
     Date and Time: Jun 01,2001   4:50:00a
Compression Method: DeflatN
   Compressed Size: 3084
 Uncompressed Size: 8369
       Compression:  63.2% - 2.948 bits/byte
  32 bit CRC value: 87b3c388
Version created by: PKZIP: 4.5
 Needed to extract: PKZIP: 2.0 or later

          FileName: tan.txt
          FileType: text
        Attributes: -a-w--------
     Date and Time: Jun 01,2001   4:50:00a
Compression Method: DeflatN
   Compressed Size: 3084
 Uncompressed Size: 8369
       Compression:  63.2% - 2.948 bits/byte
  32 bit CRC value: 87b3c388
Version created by: PKZIP: 4.5
 Needed to extract: PKZIP: 2.0 or later

-------------------

       Total Files: 2
   Compressed Size: 6168
 Uncompressed Size: 16738
       Compression:  63.2% - 2.948 bits/byte
```

Note: The above ***view*** list was generated from a DOS command line. In a UNIX ***view*** listing the “Attributes” row would be replaced by a "Mode" row.

Printing the Contents of a .ZIP File (WIN32, OS/2)

print

PKZIP gives you the option of printing files contained in a .ZIP file to a selected printer. For example, if you wish to print all of the .txt files contained in a .ZIP file, type the following:

```
pkzipc -print=lpt1 test.zip *.txt
```

When you press ENTER, information similar to the following will appear:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745

Extracting files from .ZIP: test.zip

    Inflating: readme.txt  <to LPT1>
    Inflating: whatsnew.txt  <to LPT1>
```

In this example, all files with a .txt extension that exist in the test.zip are printed to the LPT1 printer. If you do not specify a print device, the 'default' printer is used. Since many .ZIP files contain an information document (e.g., readme.txt), the ***print*** option is a good way to determine the contents of a .ZIP file without requiring you to extract a file or file(s) to your hard drive.

Testing the Integrity of a .ZIP File

test

PKZIP allows you to test .ZIP files to verify that they are not damaged. Before storing an important .ZIP file or sending it to another person, it is a good idea to test it first. For example, if you wish to test the contents of test.zip, type the following:

```
pkzipc -test test.zip
```

When you press ENTER, information similar to the following will appear:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745


Testing files from .ZIP: test.zip

Testing: readme.txt     OK
Testing: whatsnew.txt   OK
```

As each file is tested, an OK is displayed next to the name. If, for some reason, the archive has been damaged, use the ***fix*** option described on page 125 to repair the .ZIP file.

Previewing Command and Option Operations

preview

PKZIP allows you to preview the results of a set of commands and options. The commands and options specified will be completed and the resulting output will display, but no changes will be made that result in creating a new .ZIP file or in modifying an existing .ZIP file. For example, if you wish to preview an add operation without actually creating or modifying any files, enter the following:

pkzipc -add -preview test.zip *.txt

When you press ENTER, information similar to the following appears on your console:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745

♦ Using Preview Option

Creating .ZIP: test.zip
  Adding File: readme.txt   Deflating    (62.0%), done.
  Adding File: whatsnew.txt Deflating    (59.2%), done.

The compressed .ZIP file size would be: 2237 bytes
```

The information, including the size of the resulting .ZIP file, is displayed. However, PKZIP has not actually modified any of your files. The ***preview*** option will work with the ***add***, ***delete, header***, ***sfx,*** and ***comment*** commands.

Fixing a Corrupt .ZIP File

fix

In the event that a .ZIP file becomes damaged, you may find that it is not possible to extract or perform other PKZIP operations on the contents of the file. The ***fix*** option in PKZIP will attempt to repair damaged .ZIP archives.

For example, if you have determined that test.zip is damaged, type the following to attempt to fix it:

```
pkzipc -fix test.zip
```

When you press ENTER, information similar to the following appears on your console:

```
PKZIP(R) Version 6.0  FAST!  Compression Utility
Copyright 1989-2002 PKWARE Inc. All Rights Reserved. Registered Version
PKZIP Reg. U.S. Pat. and Tm. Off. Patent No. 5,051,745

Enter a new .ZIP file name (pkfixed): test1.zip

Running PKZipFix utility.

Scanning .ZIP file:      test.zip
Building new directory.
Writing new .ZIP file:   test1.zip

Recovered 2 files.
```

Please note that when you enter the ***fix*** option, PKZIP will prompt you to enter a new .ZIP file name. In the above example, test1.zip was entered. If you do not enter a file name, the name "pkfixed.zip" will be used. PKZIP scans the original file, attempts to repair the archive, and saves the updated file with the file name provided. The original, damaged file is not updated. The ***fix*** option will not repair all damaged .ZIP files. Depending on the degree of damage to the data within a .ZIP file, you may not be able to recover your files from that archive.

Create a Temporary .ZIP File on a Alternate Drive

temp

Every time you update a .ZIP file, PKZIP creates a temporary work file. Before modifying the original file, PKZIP performs all of its compression and extraction operations on the temporary work file. When the modifications to the .ZIP file are successfully completed, the original .ZIP file is replaced with the updated file (temporary work file). This means you must have as much additional disk space available as was used by the original .ZIP file. For example, if you have an existing .ZIP file of 500K and you are adding another file to it that is 10K compressed, you need additional workspace of at least 510K during the update process.

The ***temp*** option allows you to create the temporary .ZIP file on a drive other than the one on which the original .ZIP file resides. This allows you to update large .ZIP files when space is limited, such as a large .ZIP file on a floppy disk. Furthermore, by setting this temporary drive to point to a RAM drive, you can speed up the operation of PKZIP.

Immediately following the ***temp*** option, place the drive and/or path you wish to use for the temporary work file as in one of the following examples:

- UNIX based command line:

  pkzipc -add -temp=/usr/tmp test.zip readme.doc

- DOS based command line:

  pkzipc -add -temp=z:/public test.zip readme.doc

Note: It is necessary to specify a path in addition to the drive letter only if you are in a situation where disk space or access is being limited by subdirectory, such as on a local area network.

Suppressing Screen Output

silent

The ***silent*** option suppresses screen output when compressing or extracting. This option can be used to compress and extract files as part of .BAT, .CMD, or shell script files for background processing. Messages that normally appear when compressing or extracting will not be displayed. Keep in mind that errors and warnings are displayed whether the silent option is specified or not, however, prompts for other PKZIP operations are *not* displayed (e.g., Password, Overwrite, Insert Disk). You may wish to use the ***silent*** option with the ***nofix*** option, which suppresses the "attempt to fix" prompt if PKZIP encounters errors in a .ZIP file. An example command line using these options follows:

```
pkzipc -add -silent -nofix test.zip *.doc
```

In this example, PKZIP would add all files in the current directory with a .doc extension to a .ZIP archive called test.zip. All screen output would be suppressed. The "attempt to fix" prompt would be suppressed as well, if PKZIP encounters any errors in the test.zip file. For more information on the ***silent*** and ***nofix*** options, refer to *Appendix A* on page 147.

Note: On UNIX systems. The ***silent*** option must be used to suppress screen output when running pkzipc as a background process. See *Appendix F* on page 212 for more tips about scripting on UNIX systems.

Setting Internal Attributes

ASCII/BINARY (Win32,UNIX)

The **ASCII** and **BINARY** option is used to override the data type of a file. Normally, PKZIP will determine whether the data of a file is ASCII or Binary. If this option is used with no sub option, each file that is added, you will be prompted for the file to be set to ASCII, BINARY or if you want PKZIP to determine the best type. The following examples show the different uses for this option.

To set all the internal attributes to ASCII for each file added:

pkzipc -add -ascii="*" test.zip

To set all the internal attributes for the file test.txt to BINARY and auto detects the other files:

pkzipc -add -binary=test.txt test.zip *

To prompt the type for each file:

pkzipc -add -ascii test.zip *

Decoding Other Archive Types (Win32/UNIX Only)

Decode

Normally, PKZIP detects non .ZIP archive types and processes them accordingly. The **decode** option forces PKZIP to decode the file that may not be automatically detected. PKZIP automatically detects the following archive types: TAR, GZIP, UUEncode, BinHex, Bzip2, and MIME. For MIME types (including AOL MIME files), the recognized content types are Text/Plain, Multipart/mixed with text or application parts, application types octet streams, x-zip and zip. The **decode** option can be used with **extract** option.

To force the extraction of a BinHex file, use this command:

pkzipc -extract -decode save.hqx

Encoded File Type	Common File Extensions
UUEncode	*.UUE
XXEncode	*.XXE
BinHex	*.HQX
MIME	*.MIM *.MME *.MIME
Tar	*.TAR
GZIP	*.GZ *.TGZ
Bzip2	*.BZ2

Encoding to a UUEncoded File (Win32/UNIX Only)

Encode

This option, when used with the add command, will create a UUEncoded file. Two files are created when this option is invoked; a .ZIP archive as well as the UUEncoded version of the .ZIP file (.UUE extension).

To create an uuencoded file:

pkzipc -encode -add save.zip *

Generate List File (Win32, UNIX)

listfile

This option will create an ASCII text file that contains a list of the file names and/or locations of the files in an archive. A sub option must contain the name of the list file to be created. If the .ZIP file name is not specified, a list of files that would be added to the .zip file (if one were created with the -add command) would be generated.

To create a list file from an existing archive:

pkzipc -listfile=list.txt save.zip

To create a list file from your computer system (will add the files in the current directory):

pkzipc -listfile=list.txt *

Creating a Log File for a Self-Extractor (Win32, UNIX)

logfile

This option will automatically generate an ASCII text error log (pkerrlog.txt) in the destination directory every time the self extractor is executed.

To create a self extractor that generates a log file when executed:

```
pkzipc -add -sfx -logfile test.exe *.*
```

Using Other Devices (UNIX)

device

This option allows you to specify a device when compressing or extracting spanned files. When creating spanned archives, the device is treated like a 1.44 MB floppy, adding a FAT-12 file system and volume label. This command only works with 1.44 floppy disks and will fail with other disk sizes. Since this command only does a partial format, you must use a formatted floppy disk when using this command to compress files.

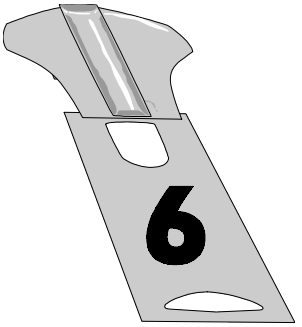
Note: The floppy diskette device must not be mounted. If your system automatically mounts diskettes, disable the auto-mount feature before using.

To compress files using floppy diskette /dev/fd0, use the following command:

```
pkzipc -add -device=/dev/fd0 -span save.zip *.doc
```

To extract files using floppy diskette /dev/fd0, use the following command:

```
pkzipc -ext -device=/dev/fd0 save.zip
```



Changing Defaults Using the Configuration File

Overview:

This chapter contains information on changing default values in the PKZIP Configuration Settings File.

Sections in This Chapter:

Introduction

Most of the PKZIP commands and options contain "default" values. Not all commands and options contain more than one value. However, for those that do, you can change the default value.

Default values for PKZIP commands and options are stored in the Configuration file. To change a default, you edit this file with PKZIP.

For a quick look at the contents of this Configuration file, refer to the next section, *Viewing the Configuration File*.

To learn how to change a default, refer to the *Changing a Default Value* section on page 137.

Viewing the Configuration File

Before you change a default, you might want to take a look at the contents of the Configuration file.

To access the Configuration file at your command prompt, type the following and press ENTER:

pkzipc -config

➢ If you are using the UNIX based version of PKZIP, the following screen will appear:

```
                    PKZIP Configuration Settings

204          = Disabled                  NoFix       = Disabled
Add          = All                       NoZipExten  = Disabled
After Date   = None                      Option Char = -
Before Date  = None                      Overwrite   = Prompt
Comment      = No files                  Password    = Disabled
Compression  = Level 5 - Default         Path        = None
Directory    = Disabled                  Recurse     = Disabled
Extract      = All                       Sfx Type    = SOL2X_SPC_C450
Header       = Disabled                  Shortname   = None
List Char    = @                         Silent      = Disabled
Locale                                   Sort
 Time        = 12-Hour                    Add         = Natural
 Date        = MMDDYY                     Extract     = Natural
More         = 0                          View        = Natural
 Add         = Disabled                  Test        = All
 Extract     = Disabled                  View Option = Normal
 View        = Disabled                  Warn. Pause = Disabled
Move Files   = Disabled                  Zip Date    = None
NoExtended   = Disabled


File Permissions = Not Preserved (0000) File Group ID  = Not Preserved
File Access Time = Not Preserved        File User ID   = Not Preserved
File Modify Time = Not Preserved        EOL Translation= None
File Types       = Regular
Follow Link Types= None
Save Keys        = Disabled
Temp Directory   =

Exclude files
 Compress        = None
 Extract         = None
Include files
 Compress        = None
 Extract         = None
```

Note: PKZIP will look for the PKZIPCFG environment variable, which specifies a path to your configuration file (PKZIP.CFG). If the PKZIPCFG environment variable is not set, PKZIP will look in the current working directory for the PKZIP.CFG file and attempt to edit it. If the is no PKZIP.CFG file in the current working directory, PKZIP will create a PKZIP.CFG file (with default settings) in the current working directory. For more information on setting the PKZIPCFG environment variable, see the **Getting Started Manual**.

➢ If you are using the Win32 based version of PKZIP, the following screen will appear:

```
                        PKZIP Configuration Settings

204          = Disabled                  More
Add          = All                        Compress   = Disabled
After Date   = None                       Extract    = Disabled
Before Date  = None                       View       = Disabled
Comment      = No files                  Move Files  = Disabled
Compression  = Level 5 - Default         Newer       = None
Directory    = Disabled                  NoExtended  = Disabled
Extract      = All                       NoFix       = Disabled
EOLTranslate= None                       NoZipExten  = Disabled
Header       = Disabled                  Older       = None
Larger       = 0                         Option Char = -
List Char    = @                         Overwrite   = Prompt
Locale                                   Password    = Disabled
 Time        = 12-Hour                   Path        = None
 Date        = MMDDYY                    Recurse     = Disabled

More - Press Enter or Space for next screen, Esc to abort
```

To view more of this file, press ENTER.

When you press ENTER, the following information appears:

```
                        PKZIP Configuration Settings

Sfx Type     = WIN32_X86_C450            Test        = All
Shortname    = None                      Times       = None
Silent       = Disabled                  View Option = Normal
Smaller      = 3                         Volume
Sort                                      Compress   = Disabled
 Compress    = Natural                    Extract    = Disabled
 Extract     = Natural                   Warn. Pause = Disabled
 View        = Natural                   Zip Date    = None

Attributes   = Read-Only, Archive
Mask
 Compress    = None
 Extract     = Read-Only, Hidden, System, Archive
Temp         = None

Exclude Files
 Compress    = None
 Extract     = None
Include Files
 Compress    = None
 Extract     = None
```

In this file, the command/options are to the "left" of the equal sign; the default values are to the "right" of the equal sign. Words that are indented under a command or option represent different tasks (for example, compress or extract). If a command or option can be used for two different tasks (for example, compress, and extract), you can set a different default for each task.

For information on changing defaults, refer to next section, *Changing a Default Value*.

Changing a Default Value

Changing a default value is similar to typing any other command using PKZIP. The only difference is that you are not compressing or extracting; you are setting a default, for example, automatically compress "only" files that end in .doc. Some of these options are configurable for both compression and extraction. For example, you can specify a default value for both compress and extract operations in such options as ***exclude*** and ***include***.

To change a default value for a command/option:

1. Type ***pkzipc*** -***config*** and the command/option followed by an equal sign and finally the sub-option value you want to set as the default. For example, to change the default for the ***add*** command to ***update*** (instead of the original default, ***all***), you would type the following:

   pkzipc -config -add=update

When you change a default value, the updated Configuration file is displayed.

Note: You will find a listing of configurable values for PKZIP's commands and options in *Appendix A - PKZIP Options: A Quick Reference* on page 147. Refer to the "Name Description" column to determine which values are configurable. Refer to the "Value(s)" column for a listing of the specific values.

Resetting Original Defaults

For some commands and options, you might want to change defaults for a few instances, but eventually switch back to all of the original defaults. PKZIP allows you to do this using the ***default*** option.

You can reset:

All defaults.

Individual defaults.

Resetting All Defaults

To reset default values for all commands and options (that contain default values), type the following and press ENTER:

pkzipc -default

Resetting Individual Defaults

PKZIP allows you to reset a default value for an individual command or option. You do not have to reset all of the commands/options at once. For example, if you wish to reset the ***add*** value back to its default setting without resetting any other Configuration values that you may have modified, type the following and press ENTER:

pkzipc -config --add

The minus sign in front of the command tells the Configuration file to set the value for that particular command back to the default value. In the case of the "**-**" character preceding the ***add*** value in the example above, it changes the "Update" value we set in a previous example back to "ALL".

Command Characteristics

Overview:

This chapter contains information on performing tasks that pertain to the "conventions" or syntax of PKZIP commands and options. These tasks are more technical, and require at least rudimentary knowledge of the operating system.

Sections in This Chapter:

Introduction

Up until this point, we have discussed PKZIP and its commands and options in very specific syntactical terms. You may find that in certain circumstances it becomes beneficial or necessary to change the syntax of PKZIP's commands and/or options. Please keep in mind that these modifications are only useful in very specific situations and should only be made by those who are very familiar with the operating system.

Changing Date and Time Environment Variables

Note: This feature is *only* necessary to accommodate special formats for entering dates or times. If the **mmddyy** date format and/or the **hh:mm** time format is acceptable, you do not have to use this option.

locale (OS/2)

By default, PKZIP uses a 12-hour time format and MMDDYY date format when archiving files. For some systems, it may be necessary to change the defined system "locale" environment variable that defines valid formats for entering dates. With PKZIP, you can change this variable in the Configuration file or while compressing files.

To change this variable, use the ***locale*** option, followed by the country. For example, to specify Germany as the default locale variable in the Configuration file, type the following and press ENTER:

```
pkzipc -config -locale=germany
```

You may also specify a locale variable while creating or updating a .ZIP file. The following is an example of such a command:

```
pkzipc -add -locale=germany test.zip *.doc
```

PKZIP can also be instructed to check for and use the environment variable defined by the operating system. Specify the ***environment*** sub-option on your command line to use the defined environment variable. For example:

```
pkzipc -add -locale=environment test.zip *.doc
```

Not specifying a sub-option with the ***locale*** option is the same as specifying the ***environment*** sub-option.

locale (WIN32, UNIX)

By default, PKZIP uses the 12-hour time format and MMDDYY date format when archiving files. The ***locale*** option allows you to use the system defined time and date format settings.

To set the default PKZIP time and date settings in the Configuration file to match your system time and date settings, type the following and press ENTER:

```
pkzipc -config -locale
```

You may also use the ***locale*** option while creating or updating a .ZIP file. The following is an example of such a command:

```
pkzipc -add -locale test.zip *.doc
```

In this example, PKZIP will use the system-defined settings regardless of the time and date settings defined in the Configuration file.

Changing the LIST Character for LIST Files

listchar

PKZIP allows you to specify an ASCII file as a source list of the files to be archived. By default, you specify this ASCII file by pointing to it with the "@" character in your command line. However, if you have files that begin with an "@", you may experience problems when trying to add these files to a .ZIP archive. Fortunately, PKZIP allows you to change the default list character to avoid such problems. This is accomplished using the ***listchar*** option. For example, if you wish to define the "+" character in place of the "@" as your default list character, type the following and press ENTER:

```
pkzipc -config -listchar=+
```

If you wish to specify an alternate list character on the command line itself, could type a command line similar to the following and press ENTER:

```
pkzipc -add -listchar=+ test.zip +file1.txt
```

When used as a command line option, the ***listchar*** option only applies to the options that follow it on that particular command line. In our example the ***listchar*** option allows you to add files that begin with an "+" character (e.g., +file1.txt). For more information on using LIST files with PKZIP see the section on page 54 and the *Extracting Files with a LIST File* section on page 115.

Note: Avoid using metacharacters as list characters. Metacharacters have a special significance to the shell and as such their usage may cause unpredictable results. This would include the following characters:

; , & ( ) | < > # NEWLINE SPACE TAB

Changing the Command/Option Character

optionchar

All commands and options illustrated thus far have been preceded by a "-" character. The "-" character is the default option character used on the command line to indicate an option or command. PKZIP allows you to change the default option character to some other specified ASCII character. By default, the option is set to the "-" character. However, if you have file names that, for example, begin with an "-", you may experience problems when trying to add these files to a .ZIP archive. Fortunately, PKZIP allows you to change the default option character to avoid such problems. This is accomplished using the ***optionchar*** option. For example, if you wish change the default option character from "-" to "+", type the following:

```
pkzipc -config -optionchar=+
```

You would then have the option of using the "+" character to indicate a command or option in your command line. Additionally, the "/" character can always be used to indicate a command or option in a DOS based command line. If you wish to specify an alternate option character on the command line itself, type the following and press ENTER:

```
pkzipc -opt=+ +add save.zip *.doc
```

When used as a command line option, the ***optionchar*** option only applies to the options that follow it on that particular command line. In our example, the ***optionchar*** option allows you to use the "+" character with the ***add*** option.

Note: Avoid using metacharacters as option characters. Metacharacters have a special significance to the shell and as such their usage may cause unpredictable results. This would include the following characters:

; , & ( ) | < > # NEWLINE SPACE TAB

Using the Classic PKZIP for DOS Command Set (WIN32, UNIX)

PKZIP for DOS was the original program developed to create and manage .ZIP files. This popular program is still widely used today and is part of many scripting processes used to backup, transfer, and manage compressed files. The classic command syntax used in PKZIP for DOS are familiar to many users. A newer version of PKZIP called PKZIP Command Line introduced a command line syntax based on easier, more intuitive option names. This new syntax allows for more options than were available with the original DOS program. It also makes the option names easier to learn and to remember since the option names match the action to be performed.

The new option format used in the Command Line version has been well received by new and existing customers who have reported it is both easy to learn and easy to use. However, there are a many veteran users of the original DOS program who have memorized the DOS command switches, or who have existing script (i.e., .BAT) files based on using PKZIP with the classic options syntax. To simplify upgrading to the new Command Line version, we have created a set of DOS Command Line Translation programs to convert the old, familiar options to the new format that runs the new program to compress and extract files.

The programs in the translation set will accept all applicable command line options in the format used by the original DOS program. These options are translated into the new syntax and are used to run the new Command Line program with the options specified. This DOS Command Line Translation Set can save time when upgrading your systems to use the new Command Line version of PKZIP by minimizing, or even eliminating any additional work needed to update existing scripts.

This translation set consists of two programs. One named PKZIP.EXE is used to pass the same command switches used by PKZIP for DOS. The other named PKUNZIP.EXE which is used to pass the same command switches used by PKUNZIP for DOS. These translation programs support as many of the options for the original DOS version of PKZIP as possible. See the table in the *Appendix E* titled **PKZIP Command Line Translation Table** on page 208 for information on which commands are supported by

the DOS translation programs.

These translation programs will return many of the same error codes as the original DOS program. The error values supported are listed below.

The following error values are returned:

PKZIP

1 - Bad file name or file specification.
2 - Error in .ZIP file.
4 - Insufficient memory.
12 - No files were found to add to the .ZIP file, or no files were specified for deletion.
13 - File not found. The specified .ZIP file or list file was not found.
14 - Disk full.
15 - .ZIP file is a read-only file and cannot be modified.
17 - Too many files.

PKUNZIP

4 - Insufficient memory.
9 - File not found. No .ZIP files found.
11 - No files found to extract/view etc...
50 - Disk full.

Appendix A
PKZIP:
A Quick Reference

This appendix contains reference information on every PKZIP command and option. For each command/option, the following information is provided:

Category:	Represents:
Name/Description	The full name of the command/option and a brief description of what that command/option does. If the command/option can be configured (defaulted) in the Configuration file, the word "configurable" appears after the description.
Value(s)	The value(s) associated with this command/option, including the "default" value for each. If a command/option does not have an associated value, the phrase "no suboptions" appears.
Example usage	An example of how to include this command/option in your PKZIP command line, including possible abbreviations. For most options, you can abbreviate the command/option. These abbreviations are illustrated in the examples used in this appendix.
Used with	This command can be used for compression, extraction, viewing, testing, a combination, or as a standalone (none of the above).

Information on each command/option follows:

Name/Description:	Value(s):	Example usage:	Used with:
204 turns on PKZIP for DOS 204g compatibility configurable	No sub-options. --- No default value.	pkzipc -add -204 save.zip *	add
add Add files to a .ZIP file. configurable	**all** - compress new files and all existing files. **archive** - turn off archive attribute of all added files (prepares backup file set for incremental archiving) **(WIN32)**. **freshen** - compress only files that exist in the .ZIP and that have changed. **update** - compress new and update existing files. **incremental** - compress only files that have the archive attribute on and subsequently turns off the archive attribute **(WIN32, OS/2)**. **-incremental** - compress only files that have the archive attribute on and does not turn off the archive attribute **(WIN32, OS/2)**. --- Default = **all**.	pkzipc -add save.zip *.doc pkzipc -add=freshen save.zip *.doc pkzipc -add=increm save.zip *.doc pkzipc -add=-increm save.zip *.doc	standalone

Name/Description:	Value(s):	Example usage:	Used with:
after Process files that are newer than, or equal to, a specified date. configurable	Any date in format specified in Country-Settings or the locale option. e.g., the US date format is: mmddyy or mmddyyyy --- No default value.	For compression: pkzipc -add -aft=091595 save.zip *.doc For extraction: pkzipc -ext -after=091595 save.zip *.doc	add, extract, delete, test, view
ascii Set the internal attribute bit (i.e., ASCII/Binary) to ASCII. (WIN32, UNIX)	The file(s) or file pattern whose internal attribute bit you wish to set to ASCII; if no files are specified, PKZIP will prompt for each file. --- No default value.	pkzipc -add -ascii="*.txt" save.zip * pkzipc -add -ascii save.zip *	add

Name/Description:	Value(s):	Example usage:	Used with:
attributes Stores files with the specified file attribute information in the .ZIP file. configurable (WIN32, OS/2)	**hidden** - compress hidden files. **system** - compress system files. **readonly** - compress read-only files. **archive** - compress files with the archive bit set. **all** - compress all types of files. **none** - do not compress files that have hidden, system, or read-only attributes; overrides the default attributes setting in configuration file. --- Default = **readonly**. Default if used on command line without a sub-option = **all**.	pkzipc -add -attr=system,hidden save.zip *	add
authenticity Embed Authenticity Verification (AV) information in the .ZIP file. (WIN32,UNIX) **Note:** this option may only be used if you have received and installed AV information for your fully registered copy of PKZIP from PKWARE, Inc.	No sub-options. --- No default value.	pkzipc -add -auth save.zip *.doc	add

Name/Description:	Value(s):	Example usage:	Used with:
before Process files that are older than a specified date. configurable	Any date in format specified in Country-Settings or the locale option. e.g., the US date format is: mmddyy or mddyyyy --- no default value	For compression: pkzipc -add -bef=091595 save.zip *.doc For extraction: pkzipc -ext -bef=091595 save.zip *.doc	add, extract, delete, test, view
binary Set the internal attribute bit (i.e., ASCII/Binary) to binary. (WIN32, UNIX)	The file(s) or file pattern whose internal attribute bit you wish to set to binary; if no files are specified, PKZIP will prompt for each file.	pkzipc -add -binary="*.exe" save.zip * pkzipc -add -binary save.zip	add
certificate Include a sub option, the name of the certificate to digitally sign a .ZIP file. (WIN32, UNIX)	Name of the certificate (as viewed in Outlook, IE or PKZIP for Windows). **Note:** If the certificate name contains a space, then enclose the certificate name in quotation marks (i.e., "My Sig"). Technical note: Certificates must be defined in the "MY" certificate store. If there is more than one certificate in the MY store with the same name, the first certificate will be used. Can be used with the HASH and SIGN options also. If these options are not defined with the certificate option, the .ZIP file, by default, will be signed using the SHA-1 method and both the central directory and files will be signed.	pkzipc -add -certificate="John Smith" save.zip *.doc	add

Name/Description:	Value(s):	Example usage:	Used with:
comment Include a text comment for individual files within a .ZIP file. configurable	**all** - all files within .ZIP file. **unchanged** - only existing files that have not changed. **add** - only new files. **freshen** - only existing files. **update** - existing and new files. **none** - turn off comment. --- Default = **add**.	pkzipc -add -com=all save.zip *.doc	add, standalone
configuration Define default values for most PKZIP commands/options.	Any configurable command/option specified in the previous chapters. --- No default value.	pkzipc -config -extract=freshen To see the current configuration values, type: pkzipc -config	standalone
console Perform a "mock" extract and display files on your screen.	No sub-options. --- No default value.	pkzipc -console save.zip *.txt	standalone
cryptalgorithm Encrypt files in the archive with the specified algorithm.	The algorithm to use for encryption. The algorithms that are available can be shown with the listcryptalgorithm option. **Note:** This option is only available in versions that have strong encryption.	pkzipc -add -cryptalgorithm=RC4,128 -password save.zip *.doc encrypt all files added with 128-bit RC4 using the specified password. pkzipc -add -cryptalgorithm=DES -recipient="My friend" save.zip *.doc encrypt all files added with DES using the certificate named "My friend".	add

Name/Description:	Value(s):	Example usage:	Used with:
dclimplode Instructs PKZIP to use the data compression library compression scheme. (WIN32, UNIX)	**ascii** - use with ASCII files. **binary** - use with BINARY or unknown data files. You need to also specify the size of the dictionary (**1024**, **2048**, or **4096**) by using a comma after the type of dictionary to use (ascii or binary). --- no default value	pkzipc -add -dclimplode=ascii,4096 text.zip *.txt	add
decode Instructs PKZIP to verify the encoding scheme (e.g., UUEncoded file) and process archived files in the event that PKZIP is unable to detect the file type automatically. (WIN32, UNIX) **Note:** PKZIP will normally detect different encoding schemes and automatically process archived files; a command line option is usually not necessary to enable this feature.	No sub-options. No default value.	pkzipc –extract –decode save.hqx	extract, test, view
default Reset the original defaults for the commands-options in the configuration file.	No sub-options No default value.	To reset all defaults: pkzipc –default	standalone

Name/Description:	Value(s):	Example usage:	Used with:
deflate64 Compress files using the deflate64 ™ method. (WIN32, UNIX) **Note:** Files compressed with this method can be extracted with most 2.5x and later versions of PKZIP. Other .ZIP programs probably cannot extract files compressed with this method.	No sub-options. No default value.	To compress files using deflate64 algorithm and level 9 compression: pkzipc –add –deflate64 –level=9 save.zip doc1.txt To compress files using deflate64 at level 2: pkzipc –add –deflate64 –fast save.zip *.doc To compress files using the default compression level (level 5): pkzipc –add –deflate64 save.zip *.doc	add
delete Remove files from a .ZIP file.	File(s) to delete. No default value.	For individual files: Pkzipc –del save.zip doc1.txt For a specific file pattern: Pkzipc –del save.zip *.doc	standalone
device Allows spanning to a specified device. (UNIX) **Note:** You must use a formatted floppy when compressing files. The floppy device must NOT be mounted. If you system automatically mounts diskettes, disable the auto-mount feature before using pkzip.	Device such as /dev/fd0 No default value.	pkzipc –add –device=/dev/fd0 –span save.zip *.doc Compresses *.doc into save.zip on the floppy diskette in /dev/fd0, prompting for further disks as necessary pkzip –ext –device=/dev/fd0 save.zip Extracts all the files in save.zip, which is on a DOS formatted floppy diskette.	add, extract, test

Name/Description:	Value(s):	Example usage:	Used with:
directories Store directory path names during compression, or recreate directory path names while extracting. Includes subdirectories (recurse). configurable **Note:** Using this command is the same as combining the path and recurse commands.	**current** - store path information relative to the current path. **root** or **full** - store the entire path beginning at the root directory. **specify** - store the path information for each file being compressed (or recreates for each file being extracted), as specified on the command line. **relative** - store the directory path relative to the current working directory of the drive(s) specified **(WIN32).** **none** - overrides directory path information in configuration file. Default = **none**. Default if used on command line without a sub-option = **current.**	Compression example (assumes you are in "/wp"): pkzipc –add –dir=root save.zip wp/docs/* The path stored would be "wp/docs/". pkzipc –add –dir=current save.zip wp/docs/* The path stored would be: "docs/". Extraction example: pkzipc –extract –directories save.zip /* **Note:** UNIX users should use the ***include*** option or place quotation marks around wildcard designations to bypass automatic wildcard expansion by the shell, which may restrict your pattern search; see the **Getting Started Manual** for more information.	add, extract
encode Creates archive in the UUEncode format. (WIN32, UNIX) **Note:** PKZIP will create two files when the encode option is envoked; a .ZIP archive (e.g., save.zip) as well as UUEncoded version of the .ZIP file (e.g., save.uue).	No sub-options. No default value.	pkzipc –add –encode save.zip *	add
enterlicensekey Allows you to enter your product license key. (WIN32, UNIX)	None	pkzipc –enterlicensekey	standalone

Name/Description:	Value(s):	Example usage:	Used with:
exclude Exclude files from being compressed or extracted. configurable **Note:** You must specify a sub-option (e.g., file pattern or list file name preceded by an appropriate list character "@") with the exclude option.	The file(s) or file pattern (for example, *.doc) being excluded. No default value.	Compression example: pkzipc –add –excl="*.doc" save.zip Extraction example: pkzipc –ext –excl="*.txt" save.zip Setting exclude default: pkzipc –config –excl="*.txt" **Note:** When you use the exclude option with the configuration command, PKZIP prompts you to configure the exclude default for add and/or extract operations.	add, extract, delete, test, view
extract Extract files from a .ZIP file. configurable	**all** - all files in .ZIP file **freshen** - only files in the .ZIP file that exist in the target directory and that are "newer" than those files will be extracted. **update** - files in the .ZIP file which already exist in the target directory and that are "newer" than those files as well as files that are "not" in the target directory will be extracted. Default = **all**.	pkzipc –ext=up save.zip	standalone
fast Set the level of compression to "fast" or level 2. configurable	No sub-options. No default value.	pkzipc –add –fast save.zip *.doc pkzipc –config –fast	add

Name/Description:	Value(s):	Example usage:	Used with:
filetype Processes files with the specified file type information in the .ZIP file. configurable (UNIX) **Note:** A "-" before a filetype sub-option tells PKZIP to exclude the specified filetype(s) regardless of the default configuration setting (e.g., –filetype=-hidden will exclude hidden files regardless of the default configuration setting).	**block** - include/exclude block device files. **char** - include/exclude character device files. **directory** - retain directory information. **hidden** - include/exclude filenames that have a dot "." in the first position of the filename (e.g., .profile) **hlink** - include/exclude hard linked files. These are linked files that are not symbolic links. They are files with a link count > 1. **pipe** - include/exclude pipe files. These are files having a file mode starting with "p" (e.g., prwxrw-rw-). **regular** - include/exclude regular files. **slink** - include/exclude symbolic links. These are files having a file mode starting with "l" (e.g. lrw-rw-rw-). **all** - include all of the above file types. **none** - exclude all of the above file types; generally, this option should be followed by one, or more, file types. This results in just the type(s) specified being included in the ZIP file. For example, -filetype=none, pipe results in only PIPE files being included. Default = **regular**.	pkzipc –add –filetype=all save.zip	add
fix Recover a corrupt .ZIP file.	No sub-options. No default value.	pkzipc –fix save.zip	standalone

Name/Description:	Value(s):	Example usage:	Used with:
hash Defines which digital certificate method/algorithm should be used when signing a .ZIP file. (WIN32,UNIX)	**SHA1** - sign files or central directory using the SHA-1 hash algorithm. **MD5** - sign files or central directory using the MD5 hash algorithm. default = **SHA1**	pkzipc –add –certificate="John Smith" –hash –s save.zip *.doc	add, certificate
header Create a comment for a .ZIP file, which will appear in the header area of the .ZIP file. configurable	A text string or file specified with a list file character (e.g., @) that represents the header information. No default value.	To include specific text: pkzipc –add –hea save.zip *.doc **Note:** when you type this command, PKZIP will prompt you for the header text To include an existing file: pkzipc –add –hea=@text.doc save.zip *.doc	add, standalone
help Display help screen for PKZIP.	Any command or option for which help is desired. No default value.	pkzipc –help pkzipc –help=add In this example you are specifying a specific command (add) for which you wish to view the help file.	standalone
id Preserve the user ID (UID) and/or group ID (GID) on extraction. configurable (UNIX) **Note:** The user who extracts files with preserved UID and GID information must have the same UID as is archived in the .ZIP file or root (superuser) file privileges.	**userid** - retain the user ID on extraction. **groupid** - retain the group ID on extraction. **all** - retain both the user ID and group ID on extraction. **none** - retain neither the user ID or group ID on extraction. No default value.	pkzipc –extract –id=userid save.zip	extract

Name/Description:	Value(s):	Example usage:	Used with:
include Include files to compress or extract. configurable **Note:** You must specify a sub-option (e.g., file pattern or list file name preceded by an appropriate list character "@") with the exclude option.	The file(s) or file pattern (for example, *.doc) being included. No default value.	pkzipc –add –include="*.doc" save.zip In this example, only .doc files will be compressed. pkzipc –config –include="*.txt" In this example, you are setting up .txt files as the files that you always want to compress or extract, until you change the default or override from the command line with the exclude option. **Note:** When you use the include option with the configuration command, PKZIP prompts you to configure the include default for add and/or extract operations.	add, extract, delete, test, view
larger Process only those files that are greater than (in bytes) or equal to a specified file size. configurable (WIN32, UNIX)	Numerical value (in bytes) that indicates a minimum desired file size. No default value.	pkzipc –add –larger=5000 save.zip * In this example, PKZIP will only add files that are larger than 5000 bytes in size to the archive.	add, extract, test, view
level Set the level of compression. configurable	Any digit from 0 through 9, with 0 being no compression at the fastest speed, and 9 being the most compression at the slowest speed. Default = level **5** (normal).	pkzipc –add –lev=9 save.zip *.doc	add
license Display the product license information for PKZIP.	No sub-options. No default value.	pkzipc –lic	standalone

Name/Description:	Value(s):	Example usage:	Used with:
links Specify that linked files be followed or preserved in a .ZIP archive. configurable (UNIX) **Note:** Following a link results in a larger .ZIP file size since two copies of file data are compressed as though each link is a separate file.	**hlink** - hard links will be followed (stored) rather than preserved. **slink** - symbolic links will be followed (stored) rather than preserved. **all** - symbolic and hard links will be followed rather than preserved. **none** - symbolic and hard links will be preserved. Default = **none**.	pkzipc –add –links=hlink save.zip This example compresses regular and hard linked files and duplicates link and file data for each hard linked file added to the .ZIP file.	add
listcertificates Display a list of available digital signatures. (WIN32, UNIX)	No sub-options. No default value.	pkzipc –listcertificates	standalone
listchar Set the list character to the specified ASCII character for list files. configurable	Any valid single character. default = **@**	pkzipc –config –listchar=+	add, extract, delete, test, view
listcryptalgorithms Displays a list of the encryption algorithms PKZIP can use with the CryptAlgorithm command. **Note:** This option is only available in versions that have strong encryption. (WIN32, UNIX)	None	pkzipc –listcryptalgorithms	standalone

Name/Description:	Value(s):	Example usage:	Used with:
listfile Generate a list file that specifies the file names and/or locations of files to be added to (or archived) in .ZIP file. (WIN32, UNIX)	A valid file name (e.g., list.txt). No default value.	pkzipc –listfile=list.txt * In this example, PKZIP will generate an ASCII text file (e.g., list.txt) that lists all files in the current directory. Pkzipc –listfile=list.txt save.zip * In this example, PKZIP will generate an ASCII text file (e.g., list.txt) that lists all files in the specified (e.g., save.zip) .ZIP file.	standalone
listsfxtypes Display a list of the types of SFX files that can be created with PKZIP.	No sub-options. No default value.	pkzipc –listsfxtypes	standalone
locale Change the system locale environment value that defines the valid formats for all date and time fields entered using PKZIP. configurable (OS/2)	A valid country name (e.g., **us**, **germany**, **france**). **environment** - PKZIP will attempt to use the environment variable defined by the operating system. Default = **US**. Default if used on command line without a sub-option = **environment**.	pkzipc –config –locale=germany pkzipc –add –locale=germany test.zip *.doc pkzipc –add –locale=environment test.zip *.doc	add, extract
locale Set the default PKZIP time and date settings to match your system time and date formats. configurable (WIN32, UNIX)	No sub-options. ---------- Default = (time=12-Hour; date=MMDDYY).	pkzipc -config -locale pkzipc -add -locale test.zip *.doc	add, extract

Name/Description:	Value(s):	Example usage:	Used with:
logfile Create self-extractor that will automatically generate ASCII text error log (named pkerrlog.txt) in the destination directory every time it is executed. (WIN32, UNIX)	No sub-options. --- No default value.	pkzipc -add -sfx -logfile test.exe *	sfx
lowercase Extracts file name(s) in lower case regardless of how it was originally archived. (WIN32, UNIX)	No sub-options. --- No default value.	pkzipc -extract -lowercase save.zip *	extract
mask Remove file attributes of files within a .ZIP file or when extracting. configurable (WIN32, OS/2) **Note:** You can only remove the attributes that have been stored, as defined by the attribute command.	**hidden** - hidden attributes. **archive** - archive attribute. **system** - system attributes. **readonly** - read-only attributes. **none** - no attributes (turns off attribute mask in the PKZIP Configurations Settings file for this instance only). **all** - all attributes --- Default (compress) = **none**. Default (extract) = **all**. Default if used on command line without a sub-option (compress and extract) = **all.**	pkzipc -add -attr=all -mask=hidden save.zip pkzipc -extract -mask=none save.zip pkzipc -config -mask=hidden **Note:** When you use the mask option with the configuration command, PKZIP prompts you to configure the mask default for add and/or extract operations.	add, extract

Name/Description:	Value(s):	Example usage:	Used with:
maximum Set the level of compression to the highest level, but lowest speed. configurable	No sub-options. --- No default value.	pkzipc -add -max save.zip *.doc pkzipc -config -max	add
more Pause after one screen of output and prompt to continue. configurable	The number of rows of information you want to consist of a screen. --- Default = one screen of information.	pkzipc -view -more=22 save.zip pkzipc -config -more **Note:** When you use the more option with the configuration command, PKZIP prompts you to configure the more default for add, extract, and/or view operations.	all commands
move Remove the files from the source drive after compression (files will reside only in .ZIP file). configurable	None --- No default value.	pkzipc -add -move save.zip *.doc pkzipc -config -move **Note:** If the move option is enabled by default in the configuration file, PKZIP will display a confirmation prompt every time you attempt to modify the configuration file.	add
namesfx Specify a file name when converting to a self-extracting file.	A valid file name (e.g., filename.exe). --- No default value.	pkzipc -sfx -namesfx=test.exe docs.zip	sfx
nametype Specify the format in which you wish to extract file(s). configurable (OS/2)	**auto** - auto-detection of file system and extraction format. **short** - files are extracted in 8+3 format. **long** - files are extracted in same format that they were originally added in. --- Default = **auto**. Default if used on command line without a sub-option = **short**.	pkzipc -extract -nametype=long test.zip /temp	extract

Name/Description:	Value(s):	Example usage:	Used with:
newer Process only those files that are newer than or equal to a specified (calendar) day in the past. configurable (WIN32, UNIX) **Note**: Specifying a **newer** value is functionally equivalent to specifying an **after** value.	Numerical value (in calendar days) that indicates some date in the past relative to the current date. --- No default value.	pkzipc -add -newer=5 save.zip * In this example, PKZIP will only add those files which have been modified in the previous 5 days.	add, extract, test, view
noextended Suppress the storage of extended attribute information (excluding file permission attributes) when adding files or suppress resetting of extended attributes on files when extracting. configurable **Note**: On UNIX, PKZIP will default to suppressing ownership (e.g., UID/GID) attributes on extraction; you may use the **Id** option to preserve these attributes.	No sub-options. --- No default value.	pkzipc -add -noextended save.zip *	add, extract
nofix Suppress the "attempt to fix" prompt if PKZIP encounters errors in a .ZIP file. configurable	No sub-options. --- No default value.	pkzipc -add -nofix save.zip *.doc	add, extract, delete, test, view
normal Set the level of compression to 5, the best balance of compression and speed. configurable	No sub-options. --- No default value.	pkzipc -add -normal save.zip pkzipc -config -normal	add

Name/Description:	Value(s):	Example usage:	Used with:
nozipextension Suppress the adding of a .ZIP extension to the .ZIP file name. configurable	No sub-options. --- No default value.	pkzipc -add -nozipextension file.ibm *.doc	all commands
older Process only those files that are older than a specified (calendar) day in the past. configurable (WIN32, UNIX) **Note:** Specifying an **older** value is functionally equivalent to specifying a **before** value.	Numerical value (in calendar days) that indicates some date in the past relative to the current date. --- No default value.	pkzipc -add -older=5 save.zip * In this example, PKZIP will only add those files which have been modified more than 5 days prior to the current date.	add, extract, test, view
optionchar Set the option character to the specified ASCII character. configurable	Any valid single character. --- Default = - .	pkzipc -opt=+ +add save.zip *.doc pkzipc -config -option=+	all commands
overwrite Determine whether or not to overwrite files on your hard drive with the files being extracted. configurable	**prompt** - prompt every file individually on whether to overwrite a file that has the same name as the one being extracted. **all** - overwrite all files that have a corresponding file on the hard drive. **never** - never overwrite a file that has a corresponding file on the hard drive. --- Default = **prompt**. Default if used on command line without a sub-option = **all**.	pkzipc -ext -over=all save.zip	extract

Name/Description:	Value(s):	Example usage:	Used with:
password Include a password with your .ZIP file. configurable	Your password, or no value. ---------- No default value.	To include password in the command: pkzipc -add -pass=beowulf save.zip To have PKZIP prompt you for a password "after" you type the command: pkzipc -add -pass save.zip	add, extract, test
path Store directory path names for files within a .ZIP file. configurable	**current** -stores the path from the current directory. **root/full** - store the entire path beginning at the root of the drive; also referred to as "full" path. **specify** - store the path as specified in your pkzip command. **relative** - store the directory path relative to the current working directory of the drive(s) specified **(WIN32)**. **none** - no path information stored. ---------- Default = **none**. Default if used on command line without a sub-option = **current**.	Assuming in you are in "/temp": pkzipc -add -path=root save.zip docs/* (the complete path is stored including "temp/docs/"). pkzipc -add -path=current save.zip docs/wp/* (the path stored would be "docs/wp"). **Note:** UNIX users should use the ***include*** option or place quotation marks around wildcard designations to bypass automatic wildcard expansion by the shell, which may restrict your pattern search; see the **Getting Started Manual** for more information.	add

Name/Description:	Value(s):	Example usage:	Used with:
permission Restores and/or sets the mode of a file on extraction. configurable (UNIX) **Note:** PKZIP will automatically restore read, write, and execute permission attributes (assuming they have been stored in the .ZIP file) on extraction; the permission option is only necessary if you wish to restore other attributes (e.g., Set user ID, Set group ID, Sticky bit) or modify permissions and/or other attributes, stored with the archived files, on extraction.	Octal mode value. --- No default value.	pkzipc -extract -permission save.zip In this example PKZIP will preserve all permissions as well as other attributes on extraction. pkzipc –extract –permission=4111 save.zip In this example PKZIP will preserve and/or attempt to modify all permissions as well as other attributes on extraction. **Note**: The permissions option can only add permissions; it cannot take away permissions from an existing mode setting; the **noextended** option used in conjunction with your umask setting may be used to supprress permission attributes.	extract
preview Preview the results of a set of commands or options without actually performing the task represented by that command/option.	No sub-options. --- No default value.	pkzipc -add -preview save.zip	add
print Print a file within a .ZIP file. (WIN32, OS/2)	The print device use, for example, "lpt1". --- Default = the default printer on your system.	pkzipc -print=lpt1 save.zip readme.txt If you do not specify a print device, the "default" printer is used.	standalone
recipient Encrypt files for special recipient(s). Only those with access to the recipient's private key can extract the files. (WIN32, UNIX)	The name of the certificate to use for encryption. The name of a text or PKCS#7 file which specifies the certificates to use for encryption. **Note:** This option is only available in versions that have strong encryption.	pkzipc –add –recipient="Thomas Francis, Jr." save.zip *.doc pkzipc –add –recipient=@recipients.txt save.zip *.doc pkzipc –add –recipient=#recipients.p7b save.zip *.doc	add

Name/Description:	Value(s):	Example usage:	Used with:
recurse Search subdirectories for files to compress. configurable	No sub-options. --- No default value.	pkzipc -add -rec save.zip * **Note:** UNIX users should use the ***include*** option or place quotation marks around wildcard designations to bypass automatic wildcard expansion by the shell, which may restrict your pattern search.	add
runafter Run or display a specified file after extraction via a self-extractor. (WIN32, UNIX)	File you wish to run or display. --- No default value.	pkzipc -add -sfx -runafter="notepad.exe readme.txt" test.exe * Launches the file (e.g., readme.txt) via the specified applications (e.g., notepad.exe). pkzipc -add -sfx -runafter="${} readme.txt" test.exe * launches the file (e.g., readme.txt) via the associated application (WIN32 only). pkzipc -add -sfx -runafter="${install.inf}" test.exe * runs the install script (e.g. install.inf) (WIN32 only) pkzipc -add -sfx -runafter="${install}%0install.inf" test.exe Runs the install script (e.g., install.inf) with the full short path pre-appended (e.g., c:\program~1\temp) (Win32 only).	sfx
sfx Create a self-extracting .ZIP file (.exe file), or convert an existing .ZIP file to an .exe file. configurable **Note:** For a listing of available self extractors, use the listsfxtypes option.	**dosfull** - create a DOS-formatted self-extractor. **jrdos** - create a DOS junior self-extractor. --- Default = (create an sfx native to the operating system).	For a new .ZIP file: pkzipc -add -sfx save To convert an existing .ZIP file to a DOS self-extracting .ZIP: pkzipc –sfx=dosfull save.zip	add, standalone

Name/Description:	Value(s):	Example usage:	Used with:
shortname Convert .ZIP file name in long file name format to a WIN32 or OS/2 equivalent "short" file name **Note:** PKZIP includes sub-options for both WIN32 and OS/2 because of the differences in the way each OS handles short file names. configurable	**Dos** - convert .ZIP file to a dos-equivalent short file name. **OS2** - convert .ZIP file to an OS/2 equivalent short file name. --- No default value.	pkzipc -add -short=dos save.zip	add
sign Determines if the central directory, local files or both should be signed. For maximum security, sign both the central directory and local files. (WIN32, UNIX)	**cd -** sign central directory. **files -** sign files. **all -** sign both the central directory and files. --- Default = all.	pkzipc -add -certificate="John Smith" -sign=cd save.zip *.doc	add, certificate
silent Suppress all screen display output. configurable **Note:** Errors and warnings are displayed whether the silent option is specified or not, however, prompts for other PKZIP operations are not displayed (e.g., Password). On UNIX, this option must be used when PKZIP is run as a background process.	No sub-options. --- No default value.	pkzipc -add -silent save.zip *.doc pkzipc -config -silent **Note:** If the silent option is enabled by default in the configuration file, PKZIP will display a confirmation prompt every time you attempt to modify the configuration file.	all commands
smaller Process only those files that are smaller than or equal to (in bytes) a specified file size. (WIN32, UNIX)	Numerical value (in bytes) that indicates a maximum desired file size. --- No default value.	pkzipc -add -smaller=5000 save.zip * In this example, PKZIP will only add files smaller than 5000 bytes in size to the archive.	add, extract, test, view

Name/Description:	Value(s):	Example usage:	Used with:
sort Sort files within .ZIP file based on specific criteria (for example, by file size). configurable **Note:** The crc and ratio sub-options will not work with the add command and sort option.	**crc** - sort by CRC value. **date** - sort by file date of file. **extension** - sort by file extension. **name** - sort alphabetically by name. **natural** - sort in the order that the file was compressed. **ratio** - sort by compression ratio. **size** - sort by the original, uncompressed size of the file ("length" in display). **comment** - sort by file comment. **none** - do not sort (same as natural). --- Default = **natural**. Default if used on command line without a sub-option = **name**.	pkzipc -add -sort=date save.zip *.doc pkzipc -config -sort=date **Note:** Then you use the sort option with the configuration command, PKZIP prompts you to configure the mask default for add, extract, and/or view operations.	add, extract, test, view

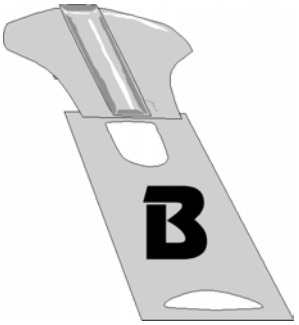
Name/Description:	Value(s):	Example usage:	Used with:
span Forces disk spanning in the event that PKZIP is unable to detect the fact that destination directory is on removable media. Also is used for creating split archives on local systems. Also is used to format or wipe removable media prior to writing the archive. **Note:** The spanning process should proceed automatically; a command line option is usually not necessary to enable this feature. For OS/2, span with sub-options is not available (no formatting, wiping or splitting of files). For UNIX, this option is required for spanning. Quick, Wipe and None are not available in UNIX.	**Format** - fully format media before attempting to write to it. **Quick** - quick format media before attempting to write to it. **Wipe** - erase contents of media before attempting to write to it. **None** - no media format or erase of media contents before attempting to write to it. (Segment size) - split files into predefined size (see sub-options below) or other specified size (in bytes) greater than 65536. **160, 180, 320, 360, 650, 700, 720, 95.7, 1.2, 1.44, 1.68, 2.88, 20.8** --- No default value.	pkzipc -add -span a:\save.zip *.doc pkzipc -add -span=format a:/save.zip *.doc pkzipc -add -span=1.44 c:/save.zip *.doc pkzipc -add -span=1457664 c:/save.zip *.doc	add
speed Sets the level of compression to 1, which is the least but fastest compression. configurable	No sub-options. --- No default value.	pkzipc -add -speed save.zip *.doc pkzipc -config -speed	add
store Sets the level of compression to 0 (no compression), and only stores the files within the .ZIP file. configurable	No sub-options. --- No default value.	pkzipc -add -store save.zip *.doc pkzipc -config -store	add

Name/Description:	Value(s):	Example usage:	Used with:
temp Creates the temporary .ZIP file required by PKZIP, on specified drive. configurable **Note:** The temp option only works when updating an existing .ZIP file.	The drive and/or path. e.g., C: or /root/temp --- No default value.	pkzipc -add -temp=z:\public test.zip *.txt This example updates the .ZIP file test.zip and uses the z:\public directory location for the temp file. pkzipc -add -temp=/temp test.zip *.txt This example updates the .ZIP file test.zip and uses the /temp directory location for the temp file.	add
test Test the integrity of files within a .ZIP file. configurable	**all** - all files in .ZIP file will be tested. **freshen** - only those files in the .ZIP file which already exist in the extract directory and that have a file modification date newer than the files already in the directory will be tested. **update** - files in the .ZIP file which already exist in the target directory and that are "newer" than those files and files that are "not" in the target directory will be tested. --- Default = **all**.	pkzipc -test save.zip	standalone

Name/Description:	Value(s):	Example usage:	Used with:
times Specify whether file access, creation, and modification times are to be preserved. configurable (WIN32, UNIX)	**access** - restores the time of last access to file(s) on extraction. **modify** - restores the time of last modification to files on extraction. **create** - restores the time of creation to files on extraction **(WIN32)**. **all** - all file times are restored. **none** - file times are not restored. --- Default = **none**.	pkzipc -extract -times=access save.zip	extract
translate Analyze text files in a .ZIP file and if necessary, translate the carriage return/newline sequence for compatibility with a specified operating system. configurable (WIN32, UNIX)	**none -** no translation is performed on. **dos -** translates text files so lines end with a return/newline pair as per the DOS standard. **mac -** translates text files so lines end with a single carriage return as per the MacOS standard. **UNIX -** translates text files so lines end with a single newline as per the UNIX (i.e., POSIX) standard. --- Default = **none**. Default if used on command line without a sub-option = native operating system compatibility translation.	pkzipc -extract -translate=UNIX save.zip	extract

Name/Description:	Value(s):	Example usage:	Used with:
version Determine the version of PKZIP you are running. **Note:** PKZIP also returns the version number to the shell by way of setting the error level; the version number value is passed directly to the shell and as such is not viewable by the user.	**major** - returns the major version number of the release. **minor** - returns the minor number of the release (e.g., - if the version number is 2.5.1, the value returned is 5). **step** - returns the step, or patch value. (e.g., - if the version is 2.04.01, the step value returned is 1). --- Default = **major**.	pkzipc -version	standalone
view Display information about the files within a .ZIP file, for example, the compressed size of a file. configurable	**brief** - present information in the most compact manner. **details** - present information in the most detailed manner. **normal** - present information in the normal manner. --- Default = **normal**.	pkzipc -view save.zip	standalone
volume Store/restore the volume label with the .ZIP file. configurable (WIN32, OS/2)	A drive letter (for example, C). --- Default = no volume label. Default if used on command line without a sub-option = current drive.	pkzipc -add -volume=C save.zip *.docs	add, extract
warning Pause after every warning, and prompt you to continue or not. configurable	No sub-options. --- No default value.	pkzipc -ext -warn save.zip *	add, extract, test, view

Name/Description:	Value(s):	Example usage:	Used with:
zipdate Set the file modification date of the .ZIP file. configurable	**newest** - set to the date of the "newest" file within the .ZIP file. **oldest** - set to the date of the "oldest" file within the .ZIP file. **retain** - retain the original date of the .ZIP file (the date on which the .ZIP file was created). **none** - disable the .ZIP file date in the configuration file, and set the .ZIP date as the last modification date. --- Default = the current date. Default if used on command line without a sub-option = **retain**.	pkzipc -add=update -zipdate=retain save.zip *.txt	add



Appendix B
Error and Warning Messages

This appendix contains reference information on all error and warning messages that can occur in PKZIP. An error usually causes the canceling of the task you are performing such as compressing a file. A warning usually indicates that something is wrong, but it is not severe enough to cancel an entire task. It might also be a reminder or query prompt. PKZIP will also return any error codes to the shell. If there were no warnings or errors, 0 is returned.

Error Messages

When an error occurs, PKZIP displays an error message. The following is a description of each error message.

Error:	Potential Cause(s):
(E2) Ambiguous option or command specified - XXXX.	If you abbreviate an option on your command line, make sure that you are supplying enough characters in the option to delineate it from similarly spelled options. If, for example, you only specify **-pr** on your command line, PKZIP will generate the (E2) error because it cannot determine whether you are specifying the **print** or **preview** option.
(E3) Ambiguous sub-option specified - XXXX.	If you abbreviate a sub-option on your command line, make sure that you are supplying enough characters in the sub-option to delineate it from similarly spelled sub-options. If, for example, you only specify **-sort=na** on your command line, PKZIP will generate the (E3) error because it cannot determine whether you are specifying the **name** or **natural** sub-option.

Error:	Potential Cause(s):
(E4) Unknown or illegal option - XXXX.	The option you specified on the command line is invalid. It does not match any known options. Verify that you typed the option correctly. Check the spelling.
(E5) Unknown or illegal sub-option - XXXX.	The sub-option you specified on the command line is invalid. It does not match any known sub-options. Verify that you typed the sub-option on your command line correctly. Verify that you are not using an illegal sub-option (-add -sort=crc). Check the spelling.
(E6) No .ZIP file specified.	There was not a .ZIP file specified on the command line. PKZIP does not accept wildcards for .ZIP file name when adding files to a .ZIP archive.
(E7) Can't create: XXXX.	PKZIP could not create a .ZIP file when fixing. PKZIP could not create a volume label on a spanned archive. PKZIP could not create a temporary file for a spanned archive. Verify that you have write access to the drive or diskette on which you are creating these files.
(E8) Nothing to do!	You did not do something that is required for a particular task. For example, PKZIP could not find the file you are trying to open or access. You might have specified to update a pattern such as *.txt and PKZIP did not find any files that matched or that needed updating.
(E9) No file(s) found.	PKZIP cannot find the file you are trying to access. For example, you might be trying to extract files from a .ZIP archive that do not exist in that archive. Verify that the file(s) you specify on the command line exactly match the file(s) in the .ZIP file. If, for example, the file in the .ZIP archive is stored with path information and you attempt to extract it, but specify the file name only, you will get the (E9) error.
(E10) No files specified for deletion.	There are no files or file patterns specified for deletion on the command line. In lieu of a specified file or file pattern, PKZIP will not assume that the user wishes to specify all (*) files.
(E11) Disk full, file: XXXX.	The hard disk or floppy disk you are writing to is full. This error occurs when PKZIP attempts to write a .ZIP file, or extract a file contained in a .ZIP file to a hard or floppy disk that is full. Free up sufficient disk space and try again.

Error:	Potential Cause(s):
(E12) Can't find .ZIP file: XXXX.	PKZIP cannot find the .ZIP file you specified. This error will only occur when you use commands/options/sub-options that work with existing .ZIP files. Verify that the file is specified correctly. If you are adding files to an archive, verify that you place the .ZIP file name before specifying files to be added on the command line. If the .ZIP file is not in the same directory where you typed the command, make sure to include path information. (e.g., pkzipc -add=freshen /temp/test.zip *.txt)
(E13) Can't open .ZIP file: XXXX.	The named .ZIP file is read-only or locked by another application and can not be modified. This may also occur on a Network drive if you do not have sufficient access rights to the file to allow you to modify it.
(E14) Can't create .ZIP file: XXXX.	PKZIP is not able to create the .ZIP file. Verify that the destination directory is not full, the .ZIP file does not already exist, or is not read-only. If you are creating the file on a network drive, confirm that you have the appropriate rights to the network file system.
(E15) Renaming temporary .ZIP file, saved as: XXXX.	PKZIP could not rename the temporary file to the specified .ZIP file name. Verify that the destination drive is not full. If you are updating a non-spanned .ZIP file on removable media (floppy diskette) and the updated archive exceeds the size available on the removable media, you will receive the (E15) error. You will need to recreate the archive for spanning. Keep in mind that you cannot update a spanned archive. If you are creating the file on a network drive, confirm that you have the appropriate rights to the network file system.
(E16) Can't open for write access, file: XXXX.	PKZIP is unable to write to the specified file or device. Verify that you have write access to the file or that your printer is configured correctly. Additionally if you are using the PKSFXS.DAT file, verify that you have PKSFXDATA environment variable configured correctly.
(E17) Error encrypting file data.	PKZIP encountered a problem with the compressed data that it was trying to encrypt. For example, the disk on which the compressed data was located was bad or corrupt.
(E18) Can't open list file: XXXX.	The named list file could not be found. It does not exist, was spelled incorrectly, is not located in the specified directory, or cannot be accessed because the user does not have the appropriate rights to the file.
(E19) Aborted file extract.	Extraction process was terminated by the user while changing disks during a disk spanning operation.
(E20) Aborted file compression.	Compression process was terminated by the user while changing disks during a disk spanning operation.
(E21) Can't modify a spanned .ZIP file.	Spanned .ZIP files cannot be modified. The spanned archive will need to be recreated.

Error:	Potential Cause(s):
(E22) Cannot format removable media.	The media cannot be format. The media may be write-protected.
(E23) Option exceeds maximum length allowed.	The command including arguments is too long and cannot be processed. Try removing options or using a shorter abbreviation of the arguments.
(E24) Insufficient disk space for ZIP comment.	There is not enough space on the system or media to write the ZIP comment.
(E25) Insufficient disk space for updated file.	Insufficient disk space for the new archive. If you are adding files to an archive on a removable media, the media may not be large enough to write the modified file (too large).
(E26) Device not ready: XXX.	The removable media device is not ready. The disk may not be in the drive properly.
(E28) Error opening source file (.Uue or .UUX).	The Uuencoded file can not be opened. The file name may be invalid or the file may not be an UUEncoded file.
(E29) Invalid file format - no 'begin' token found.	For UUEncoded files, the first word in the file must be the 'begin' word. The file you are trying to open may not be a UUEncoded file.
(E30) Error opening UU/XXEncoded destination file.	Could not open or create a file to UU/XXEncode the file.
(E31) Error writing to destination file.	There was an error writing to the decoded file. There may not be enough disk space to write the entire contents.
(E32) Error reading from source file.	There was a problem reading the UU/XXEncoded file. The file may be corrupt.
(E33) Invalid character count in Source File. File cannot be encoded.	The UU/XXEncoded file is corrupt or an unexpected character was read.
(E34) File cannot be decoded or unarchived - unknown file format.	The file is not a format known or is currently not supported by PKZIP.
(E35) Error opening source file (HQX).	The BinHex file could not be opened.
(E36) Invalid file format - could not find BinHex 4.0 token in file.	The file is not a valid BinHex 4.0 file as the required token was not found.
(E37) Invalid file formation - CRC does not match data in header.	Corrupt BinHex 4.0 file. The required CRC's do not match.
(E38) Error Opening BinHex destination file.	Could not create the destination file.
(E39) Error writing to destination file.	There was an error writing to the decoded file. There may not be enough disk space to write the entire contents.
(E40) Invalid file format - CRC does not match data.	The CRC for the data does not match. The file may be an invalid BinHex file.

Error:	Potential Cause(s):
(E41) Invalid MIME file - missing boundary.	The MIME file may be corrupt or unsupported.
(E42) Invalid MIME File - missing context type field.	The MIME is missing the vital information for decoding. The file may be corrupt or unsupported.
(E43) Invalid MIME file - invalid multi subtype.	The MIME is missing the vital information for decoding. The file may be corrupt or unsupported.
(E44) Invalid MIME file -bad message subtype.	The MIME is missing the vital information for decoding. The file may be corrupt or unsupported.
(E45) Invalid MIME file -bad application subtype.	The MIME is missing the vital information for decoding. The file may be corrupt or unsupported.
(E46) Invalid MIME file - invalid message type.	The MIME is missing the vital information for decoding. The file may be corrupt or unsupported.
(E47) Invalid MIME file -could not open file.	The MIME file could not be opened.
(E48) Invalid MIME file -could not open destination file.	Could not open destination file.
(E49) Could not save file to list.	Internal error when loading a file.
(E50) Invalid TAR file - mode error.	The TAR file contains an error and cannot be decoded. The file may be corrupt or not supported.
(E51) Invalid TAR file - date field is incorrect.	The TAR file contains an error and cannot be decoded. The file may be corrupt or not supported.
(E52) Invalid TAR file - file size is incorrect.	The TAR file contains an error and cannot be decoded. The file may be corrupt or not supported.
(E53) Invalid TAR file - CRC missing.	The TAR file contains an error and cannot be decoded. The file may be corrupt or not supported.
(E54) Invalid TAR file - blank record not valid.	The TAR file contains an error and cannot be decoded. The file may be corrupt or not supported.
(E55) Invalid TAR file - checksum (CRC) not valid.	The TAR file contains an error and cannot be decoded. The file may be corrupt or not supported.
(E56) Invalid GZIP file - encrypted files not supported.	The GZIP file contains information that currently is not supported.
(E57) Invalid GZIP file -multi-files not supported.	The GZIP file contains information that currently is not supported.
(E58) Invalid GZIP file -method not supported.	The GZIP file contains information that currently is not supported.
(E59) Invalid GZIP file -not a gzip file.	The GZIP file contains information that currently is not supported or the file is corrupt.

Error:	Potential Cause(s):
(E60) Invalid GZIP file -invalid gzip file.	The GZIP file contains information that currently is not supported or the file is corrupt.
(E61) Invalid GZIP file -could not open source file.	The GZIP file could not be opened.
(E62) Invalid GZIP file - read error.	The GZIP file contains an error and it could not be read.
(E63) Invalid TAR file - read error.	The TAR file contains an error and it could not be read.
(E64) Invalid or unknown file format - could not convert archive.	The archive can not be processed - the file may be corrupt or not supported at this time.
(E65) Could not encode file with UUEncode.	The file could not be UUEncoded. The source file may be corrupt.
(E66) Invalid TAR file - could not open file.	The TAR file could not be opened. The file may be corrupt.
(E67) Can't Open Span Device.	The floppy device for spanning could not be opened. Make sure there is a floppy in the drive and that it is not write-protected.
(E68) Invalid bzip2 file - invalid bzip2 file.	The file is not a Bzip2 file, or is corrupt.
(E69) Invalid bzip2 file - not a bzip2 file.	The file is not a Bzip2 file, or is corrupt.
(E70) Invalid bzip2 file - could not open source file.	The Bzip2 file could not be opened.
(E71) Can't open PKCS#7 file: XXX.	PKZIP cannot open the PKCSF#7 because the files does not exist, user cannot read the file, or file is not a valid PKCSF#7.
(E100) Insufficient memory - To create input work buffer. **(E101)** Insufficient memory - To create .ZIP work buffer. **(E102)** Insufficient memory - To create .ZIP file: XXXX. **(E103)** Insufficient memory - .ZIP central header data. **(E104)** Insufficient memory - For input file list. **(E105)** Insufficient memory - To extract files from .ZIP. **(E106)** Insufficient memory - To fix .ZIP file. **(E107)** Insufficient memory - To create SFX file. **(E108)** Insufficient memory - For Authenticity Verification. **(E109)** Insufficient memory - For ZIP header comment.	Insufficient memory is available to process the .ZIP file. Try making more memory available to PKZIP. If this does not rectify the problem then the .ZIP file may be corrupted. The -fix option may correct the problem. If you create a new .ZIP file and receive this message, it may be due to the number of files you are attempting to compress. Reduce the scope of your command and try again. If you are using a LIST file in your PKZIP command, you may be receiving this error because the LIST file is too large. See page 54 for more information on LIST files.

Error:	Potential Cause(s):
(Z150) Error reading .ZIP file.	PKZIP cannot read the .ZIP file or is unable to read the central directory record. The file might be located on a corrupt disk or part of a disk. This includes floppy disks.
(Z151) File too small for valid .ZIP data.	The .ZIP file is too small to be considered a valid .ZIP file. The .ZIP header must be a minimum number of bytes. The .ZIP file PKZIP encountered was smaller than the minimum.
(Z152) No CE signature found.	PKZIP is unable to locate the central end record in the .ZIP file. The file is not a valid .ZIP archive or has been corrupted. The fix option may repair the .ZIP file.
(Z153) Premature end of .ZIP.	PKZIP reached the end of compressed data before anticipated. The archive may be damaged. The fix option may repair the .ZIP file.
(Z154) Local header corrupt or not found.	PKZIP detected an error in the local header of the .ZIP file. The local header record could not be found or perhaps has an invalid date. The archive may be damaged. The fix option may repair the .ZIP file.
(Z155) Too many files in XXX.	PKZIP cannot add or extract files in excess of the limit of 16,383 with the ***204*** option enabled. Reduce the number of files you are trying to process.
(Z156) File is now too big for valid zip data.	The .ZIP archive is too large and PKZIP is unable to locate the central end record in the .ZIP file. The file is not a valid .ZIP archive or has been corrupted. The fix option may repair the .ZIP file.
(E254) Your evaluation period for PKZIP has expired. Please register to continue to using this product.	This copy of PKZIP is an evaluation version. If you have purchased PKZIP and have the serial number, enter it when prompted.
(E255) User pressed ctrl-c or control-break.	This error occurs when you press CTRL+BREAK or CTRL+C in the middle of a PKZIP operation.

Warning Messages

Sometimes a condition occurs that might cause a task to pause temporarily. This could be something that prevents part of a task from happening, or simply a message or reminder. For several of these conditions, PKZIP displays a warning message. When a warning occurs, PKZIP returns a value of 1 to the shell.

The following is a description of each warning message:

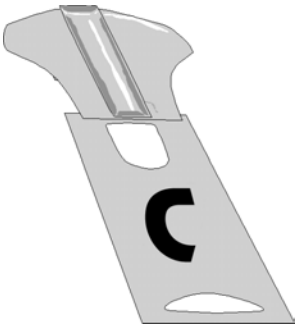
PKZIP Warning:	Potential Cause(s):
(W1) Can't create: XXXX.	PKZIP could not create volume label, file, or directory. Verify that you have appropriate access rights to the file or directory.
(W2) Illegal path or drive specified: XXXX.	The file being extracted has an invalid name or path. Verify that you have entered the correct path in your command line and that the file does not contain any inappropriate characters such as a colon or leading slash.
(W3) requires PKZIP version...	The .ZIP file is corrupt or the specified file is compressed or encoded in a way that this version of PKZIP is unable to handle. A different version of PKZIP may be required to properly extract this file. Contact PKWARE for more information.
(W4) File fails CRC check.	It is likely that the file PKZIP is trying to extract is corrupt, and was not extracted correctly. For more information, see the CRC section in Appendix D - How Does PKZIP Work? on page 205.
(W5) Unexpected size in .ZIP file.	PKZIP determined that the stored size of the .ZIP file does not equal the final size of the file being extracted.
(W6) Insufficient memory for .ZIP header comment - Header not set.	This error occurs when PKZIP attempts to allocate memory for a new header and cannot. Try making more memory available to PKZIP.
(W7) file: XXXX already exists. Overwrite (<Y>es/<N>o/<A>ll/ne<V>er/<R>ename/ <Esc>)?	The file(s) you are trying to extract already exists in the location to which you are extracting. By default, PKZIP prompts you before overwriting a file.
(W8) Could not open file: XXXX.	You may not have the proper permissions to access the file or the file may have been locked by another program while PKZIP was trying to access it. If the file is located on a network file system, consult your System Administrator to verify your access rights.
(W9) Could not delete file: XXXX.	You do not have the proper permissions to access and delete the file, or another application has the file open. This warning only occurs when the move option is used on the command line.
(W10) Deflated file has bad table. **(W11)** Deflated file has bad compression block type.	The deflated file has a bad table or compression block type. The file is probably corrupt or not a .ZIP file. Files that have been damaged in this way cannot be recovered.
(W12) Unexpected end of compressed data.	Corrupt data caused PKZIP to abort the extraction before it could finish.
(W13) Skipping encrypted file: XXXX.	PKZIP encountered a file that has been password protected. You need the password to access this file.

PKZIP Warning:	Potential Cause(s):
(W14) Imploded file has bad table. **(W15)** Imploded file has bad literal table.	The Imploded file being tested or extracted has an error in its encoding. The file is probably corrupt or not a .ZIP file. Files that have been damaged in this way cannot be recovered.
(W16) Can't extract reduced files.	The compression method used to originally compress the file(s) (reduce) is not supported by PKZIP, therefore, the file(s) cannot be extracted.
(W17) Can't extract tokenized files.	The compression method used to originally compress the file(s) (tokenize) is not supported by PKZIP, therefore, the file(s) cannot be extracted.
(W18) Unknown compression method for file: XXXX.	An unfamiliar compression method has been used with the current .ZIP file.
(W19) Could not clear archive attribute on file: XXXX.	PKZIP could not clear the archive attribute on a file. The file will be compressed but the archive bit cannot be cleared. This warning usually occurs when the add=incremental option is used on the command line.
(W20) Incorrect password or no certificate found for file: XXXX.	Verify that you entered the correct password for the .ZIP file. When a .ZIP file is password protected, you can only access the contents of that .ZIP file with an appropriate password. If the file is encrypted with a certificate, verify that you have access to the private key for that certificate. **Note:** Passwords are case sensitive.
(W21) Temporary file created in current directory.	PKZIP creates a temporary file for the file(s) being compressed when updating a .ZIP file. PKZIP is unable to create the temporary .ZIP file in the specified location. The file is placed into the current directory.
(W22) Authenticity Verification Failed!	The Authenticity Verification (AV) information contained in the .ZIP file is corrupt. Failure of AV indicates a file that has been tampered with or damaged. If the file has failed the AV check, the contents are suspect.
(W23) Authenticity Verification Failed!	The stored Authenticity Verification (AV) checksum value did not match the calculated checksum value. The .ZIP file has been tampered with or is perhaps corrupt.

PKZIP Warning:	Potential Cause(s):
(W24) file: XXXX short name already exists. Increment (<Y>es/<N>o/<A>ll/ne<V>er/<Esc>)?	Before proceeding with file compression and .ZIP archive creation in an add operation, PKZIP creates a listing of all of the files to be added to the archive. This file list is created in the background and is not apparent to the user. PKZIP eventually uses this file list to create the .ZIP archive. When the shortname option is used on the command line, PKZIP attempts to shorten any long file names to the 8+3 format before adding it to this file list. The criteria PKZIP uses to shorten the file name is dependent on the specified operating system sub-option (e.g., os2, win32). There may be instances where PKZIP attempts to shorten two different long file names to the same short file name. If, for example, a shortened file name is added to the file list as: filename.txt If PKZIP subsequently attempts to rename a second file to a specific short name before adding it to the file list, but detects that the shortname already exists in the file list, it will generate the (W24) warning prompting you to increment the file name's truncated number. Assuming the shortname sub-option was set to OS2, entering Y at the warning prompt would rename the file to something similar to the following: filename.txt After all of the specified files have been added to the file list, PKZIP will proceed with file compression and create the .ZIP archive.
(W25) Distribution license information was not installed.	The distribution license information was not correctly placed at the time of installation. The distribution license information is placed in a file called pkzip.ex_. If you need to re-install PKZIP, first verify that pkzip.ex_ does not exist in the installation directory. If pkzip.ex_ does exist in the installation directory, either delete the file or allow the setup program to overwrite the file. Do not rename pkzip.ex_ if prompted by the setup program.
(W26) directory: XXXX already exists. Overwrite (<Y>es/<N>o/<A>ll/ne<V>er/<Esc>)?	Assuming the overwrite option is set to prompt, this warning appears when PKZIP attempts to extract a directory over an existing directory with the same name. Answering Y at this prompt will update any extended attributes (EAs) stored in the .ZIP file.
(W27) Insufficient memory for extended attributes.	This error occurs when PKZIP attempts to allocate memory for extended attributes and cannot. Try making more memory available to PKZIP.
(W28) Incorrect multi-volume label.	The volume labels for the spanned media are invalid. Be sure you have the correct disks for the entire spanned set.
(W29) Can't rename temporary file. Saved as XXXX.	
(W30) Invalid temporary file. Original file unchanged.	
(W31) Can't extract file: XXXX	

PKZIP Warning:	Potential Cause(s):
(W32) Can't patch file: XXXX.	
(W33) Can't delete file: XXXX.	
(W34) Insufficient memory to translate EOL for XXXX.	
(W35) File too big: XXXX.	
(W36) Empty password, files will not be password protected.	When trying to password protect your file, you entered a password containing no letters or numbers.
(W37) Can't sign file.	This warning appears when PKZIP fails to sign a file using the specified digital certificate. Common reasons are incorrect password for the certificate (not all certificates have passwords), no private key (certificate needs to have a private key).
(W38) Can't sign central directory.	PKZIP failed to sign the central directory. Common reasons are incorrect password for the certificate (not all certificates have passwords), no private key (certificate needs to have a private key).
(W39) Signature is invalid.	The archive has been changed after I was signed (usually by someone who is not using a digital signature). The archive may also be corrupt.
(W40) Certificate not trusted.	The certificate is currently not to be trusted.
(W41) Certificate expired.	The certificate has expired (i.e., the archive was signed a long time ago).
(W42) Certificate was revoked.	The issuer has revoked the certificate.
(W43) Certificate not found: XXX.	PKZIP was unable to find a certificate of that name on the system.
(W44) This archive may require PKZIP version XXX.	The .ZIP file is compressed or encoded in a way that this version of PKZIP is unable to handle. A different version of PKZIP may be required to properly extract all of the files. Contact PKWARE for more information.
(W45) Bad data in compressed stream.	
(W46) Encryption algorithm is not available. Using: XXX.	PKZIP cannot use the specified algorithm on this system. Use the ListCryptAlgorithms command to view a list of the encryption algorithms that PKZIP can use
(W47) No recipients specified. Recipients will not be used.	You specified the –recipient option, but did not include any actual recipients (or specified bogus recipients). When this occurs, PKZIP will not strongly encrypt files for recipients. If you did not tell it to use passwords; that is, you did not use the –password option, it will not encrypt files at all. In addition, if you specify –password and did not also specify -cryptalgorithm, you will not get strong encryption. You will, however, get traditional encryption.

(W48) Illegal path information was stripped from file: XXX	The file name stored in the archive started with "/" or "../". Extracting a file with this type of path information could overwrite critical system files. When PKZIP encounters a file name like this, it will strip out the illegal path information before extracting the file. If the path or directories options are not used, this warning is not given, since the illegal path information would not normally be extracted.



Appendix C Frequently Asked Questions

This section lists some commonly asked questions about PKZIP and related subjects. We hope you will find this information helpful.

Why do I get the message "SYS1041: The name specified is not recognized as an internal or external command, operable program or batch file." or " Bad command or file name" or "XXXX: not found"?

These messages tell you that your operating system cannot find the program to which you are referring. This occurs because you are either not spelling the name of the program correctly, or you did not put a space between the program name and its options, or the program has not been properly installed. If you are trying to run PKZIP and you get this error, it may be because pkzipc.exe is not in your search path.

Why didn't the files I zipped get any smaller?

On occasion, you may find that the files you add to a .ZIP file do not compress. These files are "stored". This occurs when a file is either already compressed or encrypted. You will often find that files distributed with commercial applications are already compressed.

I zipped up a bunch of files but now I have LESS disk space?

When PKZIP compresses files, it makes a copy of the original file. The original file(s) still exist. If you wish to recover space that was taken up by the original file(s), you must either delete them yourself, or instruct PKZIP to delete the file(s) with the ***move*** option.

What is the difference between add=freshen and add=update?

The ***freshen*** and ***update*** sub-options are very similar. This may be confusing at first, but the difference between them is easy to understand.

The ***freshen*** option tells PKZIP to archive any files which match those already in the .ZIP file. These files are re-compressed only if they are newer than the files already in the .ZIP file. Each file is evaluated individually.

The ***update*** sub-option archives all files, with one distinction. If the ***update*** option is not used, all files specified are compressed and added to the .ZIP file, even if they already exist in the .ZIP file. By using the ***update*** sub-option, you instruct PKZIP to compare what is already in the .ZIP file against what it was asked to compress. If a file is already present in the .ZIP file as well as the source directory, PKZIP compresses a file only if it is newer than the copy of the file within the .ZIP file. If a file in the source directory is not already present in the target .ZIP file, PKZIP adds it to the .ZIP file.

Is PKZIP compression "lossy" or "lossless"?

PKZIP uses a "lossless" compression scheme. This means that 100% of the original data is preserved and re-created. There is no difference between the data that you put in and the data that you get back out.

There are other compression methods that are known as "lossy". The idea behind these compression methods is that if you throw away some of the data, it becomes less complex and therefore can be compressed more. This type of compression is only useful for data that need not be precise. This applies to some applications that use pictures and sound.

How do I include subdirectory information in my .ZIP file?

In order to include subdirectory information in your .ZIP file, you must recurse the subdirectories and preserve path names. This is done with the ***directories*** option. For example:

```
pkzipc -add -directories test.zip *
```

In this example, the current directory as well as all subdirectories and files contained therein are archived in a file called test.zip.

When a .ZIP file is created with paths stored, these paths are visible in a view of the file (***view***).

To re-create these subdirectories, or to place files into their original subdirectories, the ***directories*** option must be used with the ***extract*** command.

I zipped up some subdirectories, but I cannot get them to come back.

Did you remember to use the ***directories*** option when you originally created the .ZIP file? Did you use the ***directories*** option when you extracted the contents of your .ZIP file? To verify that there are paths in the .ZIP file, do a view of the file:

```
pkzipc -view test.zip
```

If you do not see paths as part of the file names within the .ZIP file, then paths are not stored and therefore cannot be recovered. If you do see paths make sure that you are using the ***directories*** option when you extract the files. For example:

```
pkzipc -extract -directories test.zip
```

How do I unzip a single file that is in a subdirectory in the .ZIP file?

Type ***pkzipc -extract*** with the name of the .ZIP file and the name of the particular file you want. With a .ZIP file that contains paths, the procedure is the same.

Assume you are working with a file called test.zip that contains the following files:

```
file1.txt
temp/file2.txt
temp/tut/file3.txt
```

To extract only "file3.txt" from this .ZIP file, you must specify the complete name and path.

pkzipc -extract test.zip temp/tut/file3.txt

If you wanted to extract it with its subdirectory, simply include the ***directories*** option on the command line.

How do I unzip a directory without also extracting its subdirectories?

Using the test.zip file we discussed in the previous question, we could extract the entire contents of the temp subdirectory easily:

pkzipc -extract -directories test.zip “temp/*”

If we did it as shown above we would not only extract all the files in the "temp" subdirectory, but also the "tut" subdirectory below it and any files it contains.

To extract only the "temp" subdirectories contents, and nothing else, we must exclude those directories we do not wish to extract:

pkzipc -extract -directories test.zip “temp/*” -exclude=”temp/tut/*“

If the "temp" subdirectory had multiple subdirectories nested in it, you would need to exclude each one individually on the command line.

What is PKWARE AV?

AV is short for "Authenticity Verification". AV is a process whereby a copy of PKZIP has unique codes and information contained in it identifying the owner of the copy of PKZIP. This information is then encoded into a .ZIP file when it is created. When the file is extracted by PKZIP, this information is checked. If the .ZIP file has been modified by a copy of PKZIP other than the one that initially created it, PKZIP will report that the file has been tampered with. The advantage of this feature is to offer a layer of protection between the creator of an archive and the recipient. The recipient knows that the file received is the file that was sent, as well as being able to identify the creator if it is not known.

I forgot my password; what do I do?

1. Try to remember the password.

2. Try passwords that are "close" to what you think it was.

3. Try mixed upper and lower case versions of your password.

Do not forget or lose your passwords! PKWARE has no special means for "getting around" the encryption and may not be able to assist in the recovery of an encrypted file. To help avoid the loss of data, you may wish to keep a written copy of your password(s) in a secure place.

What does "Unknown Compression Method" mean?

There are many different methods of compression. In the history of PKZIP alone, there have been seven different methods to date. The .ZIP file format was designed so that additional methods of compression can be added as they are developed. Therefore, the .ZIP file format will never need to be abandoned. This means that the .ZIP file in question was created or updated by a newer version of PKZIP than is being used to extract the data. You must use a newer version of PKZIP to extract these files.

How can I make PKZIP run faster?

PKZIP defaults to a compression method that is average in both compression amount and speed. If you want to get the most speed out of PKZIP, try the following:

1. Specify a faster compression method with a level sub-option (e.g., -level=0) or with a speed compression option alone (e.g., -speed). See page 77 for more information.

2. Compression speeds are highly dependent on the location of files being added, as well as the temporary file PKZIP creates when performing certain compression operations. If these files are located on a network drive, you may want to move them to a local drive before running PKZIP. Be aware of the effects file location can have on PKZIP's speed.

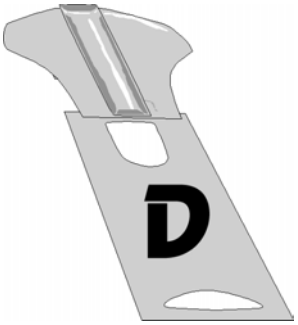
How many files can be in a .ZIP file?

There is no limit to the number of files you can add to a .ZIP file. However, if you use the ***204*** option for PKZIP 204g compatibility, your .ZIP file may contain no more than 16,383 file entries.

Can I send a .ZIP file to a different type of computer?

As of the publication of this manual, PKWARE supports PKZIP on MS-DOS, Windows(98, NT, 2000, XP), OpenVMS, HP-UX, IBM AIX, Linux, Sun Solaris, MVS/ESA, OS/390, z/OS, VSE, and OS/400 platforms. PKWARE intends to support additional platforms and will announce this support as it becomes available.

Because PKWARE has dedicated the .ZIP file format to the public domain, it is possible for other people to write programs which can read .ZIP files. We are aware of PKZIP compatible programs for a number of different platforms. A .ZIP file can be transferred to any platform for which you can find a compatible extraction program. Extraction and Compression programs not developed by PKWARE may not be completely compatible with the .ZIP file standard. Contact PKWARE for a list of platforms for which PKZIP and PKZIP compatible software is available.



Appendix D
How Does PKZIP Work

This Appendix provides a description of how PKZIP actually does its job. It is not necessary for you to know or understand the information presented here, any more than you need to know how your carburetor works to drive a car. It is presented to help you feel more knowledgeable about the software.

Two Processes

PKZIP performs two functions: compression and archiving. Although the two ideas may seem related, they are actually completely separate.

Compression is the process of representing a given piece of information with a smaller piece of information.

Archiving is the process of combining many files into a single unit, usually along with vital information about each file.

Compression

The actual process used by PKZIP for its compression is too complex to explain in detail. Instead, some of the general principles behind information theory and compression are explained.

To understand data compression, you need to understand two ideas: Information Content and Binary Coding.

Information Content

Everything in your computer, everything you ever read, is "information". The more complex a message is, the higher the information content. The less complex, the less "random" a message is, the lower the information content.

If a message contains a low amount of information, it should be possible to represent it in a smaller amount of space. Look at this page, for example. How much of the page is white space with no letters (information) on it? If you took away all of the white space this page would be significantly smaller. How many times are the words "the", "information" and "compression" on this page? If you could replace each of these words with something smaller, you would save a significant amount of space.

The more frequently the same group of symbols (in this case, letters) appear, the lower the information content of the message.

The "Field of Information Theory" uses the term *entropy* to describe the "true" information content of a message. Formulas can be used to determine the *entropy* of a message. The idea behind data compression is to derive a new smaller message from a larger original message, while maintaining the *entropy* of the original message.

As a simple example, consider this sentence:

she sells sea shells by the sea shore

This sentence is 37 characters long, including spaces. The spaces cannot be simply thrown away as the meaning of the original message would be lost.

There are obvious patterns to the sentence. The combination 'se' appears three times, 'sh' three times, and 'lls' twice. In fact, the 'se' pairs all have a space in front of them, so these can be ' se'.

*sh*e se**lls** sea *sh*e**lls** by the sea *sh*ore

We can replace each of these patterns with a single character:

#=" se"

$="sh"

%="lls"

Note that the first replacement string includes a space at the beginning. If we reproduce the sentence with these symbols, it now looks like:

$e#%#a $e% by the#a $ore

The new representation is 24 characters long; this is a saving of 13 characters, or 36%.

Binary Data Representation

All information used, stored, and processed by computers is represented by two values, *zero* and *one*. Everything that you see on your screen, everything stored on disk, is represented by combinations of zero and one.

You can think of it as a sort of Morse Code. In Morse Code there are also only two values, dot and dash. When a computer stores a character, it uses a combination of eight zeros and ones.

Having eight positions in which to store a zero or one gives the computer 256 different possible combinations. You arrive at this number of combinations in this way:

If you have one coin, it can be in either of two positions: Heads(0) or Tails(1)

0 or 1

If you have two coins, there are four possible combinations:

00, 11, 10, 01

If you have three coins, there are eight possible combinations:

000, 001, 010, 011, 100, 101, 110, 111

As you can see, each time you add another coin (binary digit), the number of possible combinations doubles: 2, 4, 8, 16, 32, 64, 128, 256.

The computer uses eight binary digits to get 256 possible values. These values are mapped onto a table called ASCII (American Standard Code for Information Interchange). Each different combination has a particular character that is mapped to it, such as a letter, number or symbol. Each of these positions of 0 or 1 is called a **bit.**

she sells sea shells by the sea shore

The sample message above would be represented by 296 bits (37x8 bits).

If we follow standard ASCII, we have 256 different symbols being represented for our use. The sample sentence we are using only contains alphabetical characters, and only 11 of them at that. If we only need 11 different values, we could use a lower number of bits per character.

The closest value to 11 using binary combinations is 16 combinations, using 4 bits per character. If we wrote a new table of our own using four bits per character, and used it to represent the message, we would use only 98 bits. This would be half as many bits, a considerable savings.

We can do better!

It is possible to have binary codes of varying length. To do this we must use codes with unique values that are not repeated as the beginning of another code. In this way, we can find the codes in a long stream of zeros and ones.

If the codes were not constructed to have unique beginnings, it would not be possible to find each individual code within a long stream of zeroes and ones.

There are many types of coding techniques that produce codes of varying length, based upon symbol frequency. Some well-known coding schemes are Huffman and Shannon-Fanno. PKZIP uses Huffman encoding. The scheme is too complex to document here fully, however, we will discuss some rudiments of encoding. It is necessary for you to understand the principles described here.

A table of variable length codes for 11 symbols would look like this:

11	1101
110	0100
101	1000
001	01010
1011	00000
0010	

As you can see, the codes are getting longer and longer. Because of this, we will get the best results if we map the shortest code to the most common symbol in the message. If you know Morse code, or have occasion to look at it, you will notice that frequent characters, such as 'e', 't', 's' and so on have shorter codes assigned to them. Morse code tends to be about 25% more efficient because of this than it would have been had the codes been assigned at random.

A useful idea here is to allow a symbol to be not only a character, but also a group of characters.

Using the common patterns found in the first analysis of the message, we can map the following table:

Occurrences	Symbol	New Code	Bits in Message
4	e	11	8
4	(space)	110	12
3	'se'	001	9
3	sh	101	9
2	lls	1011	8
2	a	0010	8
1	b	1101	4
1	y	0100	4
1	t	1000	4
1	o	01010	5
1	r	00000	5

Our new coding scheme can represent the message with only 74 bits. This is a savings of 222 bits from the 296 bits used in the "natural" encoding. This is one quarter of the original message size.

One important factor that would affect a real situation is the table we are using. In order for the data to be re-created from the "compressed" representation, we must include a copy of the table used to encode the data.

This can be a seriously limiting factor. If the data is too complex, or the encoding scheme too inefficient, the table used can be as big as the space saved by the encoding. In the worst cases, an attempt to re-encode the message using a table results in the encoded message plus the table being larger than the original message.

This is why data which uses a low number of symbols and frequently repeated combinations of symbols, such as a text file, compresses well. Complex, highly random data, such as the information representing a program on disk is difficult to encode efficiently, and therefore compresses less.

Speed vs. Size

Searching for these patterns, and determining an efficient way to encode the data, takes a lot of computer power and time. The more time taken to analyze the data the better the compression will be. To get more speed, you must sacrifice some level of compression.

There are other steps and methods used in powerful compression schemes such as those used by PKWARE products. Hopefully this explanation gives you a better understanding of what happens when PKZIP compresses data.

Archiving

Programs usually rely heavily on associated data files, or may actually consist of several related programs. Some programs may require dozens or even hundreds of files.

In the "dawn" of the PC age, people wanted a way to keep all of these associated files in one location. "Library" programs were created to take a number of files and group them together into a single file. This made them easier to find, easier to store, and much easier to send to someone by modem. It makes much more sense to be able to send someone a single "package" instead of many files. If you forget a file, all sorts of problems arise.

These programs were the birth of Archiving. In order for a single file to hold many files, information about each file also had to be stored in the archive. This information could then be used by the archival software to locate a file and pull it out, or to list information about the files contained within an archive.

Compression was first available as a utility that would take a single file and produce its compressed equivalent. People began to group files together with a Library program and then compress the archive file.

The next and obvious step in this process was to combine the two ideas. Compress the files and archive them. This made storage very simple; the compression was no longer a separate step and could be taken for granted as part of the archiving process.

PKZIP is the second generation of these programs. PKZIP can not only compress and archive files, but also stores a great deal of vital information about the files. PKZIP even stores directory structures and volume labels.

How PKZIP builds a .ZIP File

When you specify a PKZIP command line, PKZIP goes through several steps:

1. Parsing the command line.

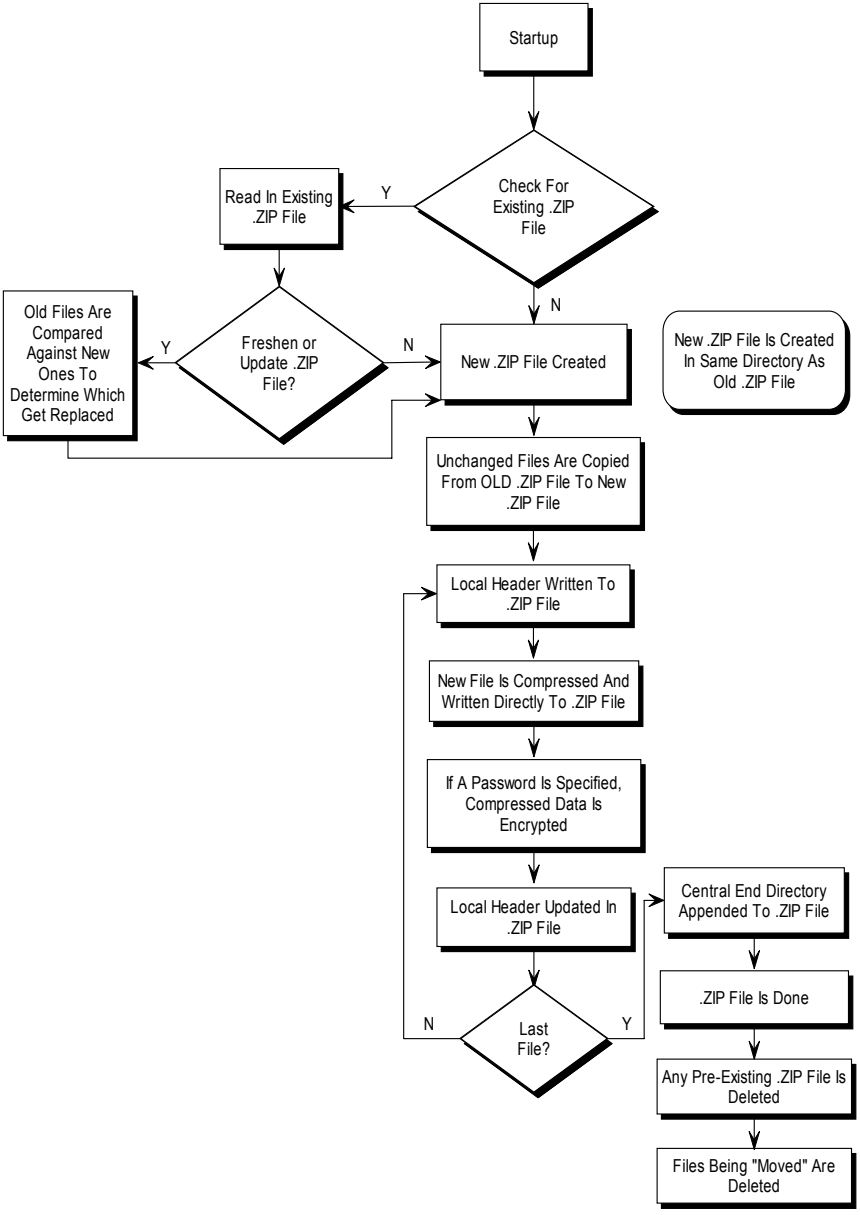
2. Reserves the memory it will need to perform the compression, archiving and buffering.

3. Next, PKZIP looks for a .ZIP file with the same name as the one you specified on the command line. If it finds one, PKZIP reads the information on the files that it contains.

4. PKZIP then performs the requested action; it builds a new .ZIP file if none was found.

5. PKZIP reads the information from the command line specifying what files it is supposed to take, what files it should not take, and if there is an ***exclude*** command.

How PKZIP Builds A .ZIP File



6.

If a @list file is used, PKZIP reads it, then checks for which files exist. If a pattern is specified in the @list file, PKZIP generates a list of the files which match this pattern.

If directory recursion has been specified with the ***recurse*** option, PKZIP next looks for any subdirectories. If it locates subdirectories it goes into them and looks for any files matching the files specified on the command line or in the @list file. If PKZIP finds subdirectories in the subdirectories, it repeats the process. It will continue this process until it finds no additional subdirectories.

Now PKZIP has a list in memory of all the files it should take. The files specified for exclusion are now compared against this list, and any that match are removed. If after this step is complete the list in memory is empty, PKZIP finishes with a message "Nothing to do!".

Now PKZIP reads-in each file, one at a time, and compresses it. When it is finished compressing a file, it adds it to the .ZIP file being created.

6. As PKZIP reads each file, it computes a CRC value for it. This CRC value is stored as part of the information concerning the file.

CRC

This is an acronym for Cyclic Redundancy Check. When a CRC is performed, the data making up a file is passed through an algorithm. The algorithm computes a value based upon the contents resulting in an eight digit hexadecimal number representing the value of the file.

If even a single bit of a file is altered, and the CRC is performed again, the resulting CRC value will be different. By using a CRC value, it can be determined that there is an exact match for a particular file.

PKZIP calculates a CRC value for the original file before it is compressed. This value is then stored with a file in the .ZIP file. When a file is extracted it calculates a CRC value for the extracted data and compares it against the original CRC value. If the data has been damaged or altered, PKZIP can recognize and report this.

7. When PKZIP adds the compressed file to the .ZIP file, it first writes out a

"Local Header" about the file. This Header contains useful information about the file, including:

The minimum version of PKZIP needed to extract this file.

The compression method used on this file.

File time.

File date.

The CRC value.

The size of the compressed data.

The uncompressed size of the file.

The file name.

8. After PKZIP has written all of the files to disk, it appends the "Central Directory" to the end of the .ZIP file. This Directory contains the same information as the Local Header for every file, as well as additional information. Some of this additional information includes:

The version of PKZIP that created the file.

A comment about each file (if any).

File attributes (Hidden, Read Only, System).

Extended Attributes (If Specified).

Deleting Files From a .ZIP File

PKZIP deletes files from a .ZIP file in the following manner:

1. PKZIP reads in the names of all the files contained in the .ZIP file.

2. PKZIP compares this list against the files you wish to delete.

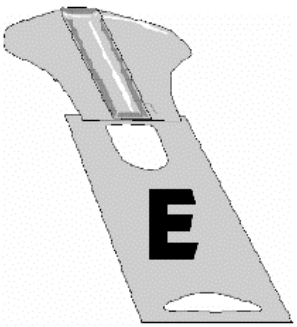
3. Whatever files remain are moved into a new .ZIP file.

4. The original .ZIP file is superseded by a newer version of the .ZIP file.

This means that in order to delete files from a .ZIP file, you must have enough disk space to hold the existing .ZIP file as well as the .ZIP file that holds the deleted files.

Adding To an Existing .ZIP File

Adding files to a .ZIP file is the same as creating a .ZIP file, but with one difference. Before PKZIP begins to add files, it first reads in the files that were in the existing .ZIP file. These old files and the new files are then both written out to a new .ZIP file, the old files being superseded by the new .ZIP files. This means that there must be enough free space for the old .ZIP file as well as the new .ZIP file to co-exist.



Appendix E Command Line Translation

This Appendix provides a description of the PKZIP for DOS commands that can be used with the DOS translation programs to run PKZIP Comand Line.

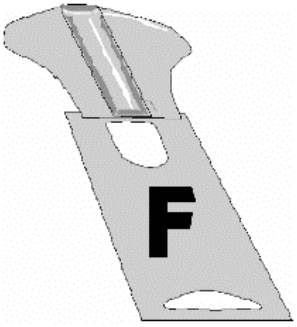
PKZIP Command Line Translation Table

PKZIP for DOS	***PKZIP Command Line***
pkzip	***pkzipc -add***
-a+	-add=archive
-ac	-comment=update
-b<drive:path>	-temp=drive:path
-c/-C	-comment(all,add)
-d	-delete
-e[x|n|f|s|0]	-level (0-9)
-ex	-maximum
-en	-normal
-ef	-fast
-es	-speed
-e0	-store
-f	-add=freshen
-h	-help

PKZIP for DOS	*PKZIP Command Line*
-i	-add=incremental
-i-	-add=-incremental
-j<h,r,s,a>	-mask=all (hidden,system,readonly,archive)
-J<h,r,s,a>	-mask=none (default)
-k	-zipdate=retain
-k-	-zipdate=none
-l	-license
-m[u|f]	-move (with -add=update or -add=freshen)
-o	-zipdate=newest
-o-	-zipdate=none
-P	-path=full
-P-	-path=none
-r	-recurse
-rp	-directories=relative
-rP	-directories=specify
-s[password]	-password (or -password=xxxx)
-t<date>	-after=mmddyy (or mmddyyyy)
-T<date>	-before=mmddyy (or mmddyyyy)
-u	-add=update
-v{r,d|e|n|o|p|s][m]	-view=normal -sort(date, extension, name, natural,ratio,size) -more
-vb{r,d|e|n|o|p|s][m]	-view=brief -sort(date, extension, name, natural,ratio,size) -more
-vt{r,d|e|n|o|p|s][m]	-view=details -sort(date, extension, name, natural,ratio,size) -more
-w<h,s,a>	-attributes (hidden,system,archive)
W<h,s,a>	-attributes (none)

PKZIP for DOS	***PKZIP Command Line***
-x<filename>	-exclude=filename
-x@listfile	-exclude=@listfile
-z	-header
-&	-span (to force if not detected)
-&f	-span=quick
-&fs[drive] / -&sf[drive]	-span=quick -directories=full -include=[drive]*.*
-&u	-span=format
-&us[drive] / -&su[drive]	-span=format -directories=full -include=[drive]*.*
-&w	-span=wipe
-&ws[drive] / -&sw[drive]	-span=wipe -directories=full -include=[drive]*.*
-$[d]	-volume=drive
@<listfile>	-listfile=<listfile>
!	-authenticity
pkunzip	***pkzipc -extract***
-c[m]	-console [-more]
-d	-directories
-e[r][c|d|e|n|p|s]	-sort [-][crc,date,extension,name,ratio,size,natural,none]
-f	-extract=freshen
-h	-help
-j<h,r,s,a>	-mask=all (default) (hidden,system,readonly, archive)
-J<h,r,s,a>	-mask=none
-l	-license
-n	-extract=update
-o	-overwrite=all

PKZIP for DOS	*PKZIP Command Line*
-o-	-overwrite=never
-p[a/b][c][#]	-print
-s[password]	-password (or -password=password)
-t	-test [all,freshen,update]
-v{r,d|e|n|o|p|s][m]	-view=normal -sort(date, extension, name, natural,ratio,size) -more
-vb{r,d|e|n|o|p|s][m]	-view=brief -sort(date, extension, name, natural,ratio,size) -more
-vt{r,d|e|n|o|p|s][m]	-view=details -sort(date, extension, name, natural,ratio,size) -more
-x<filespec>	-exclude=<filespec>
-x@listfile	-exclude=@listfile
-$[d]	-volume=drive
@<listfilename>	-listfile=<listfilename> zipfilename.zip



Appendix F
Tips for Scripting PKZIP on UNIX Systems

There are a few general rules when scripting PKZIP on UNIX systems.

1. Use the **silent** option.
2. Explicitly set the location of the configuration file within your script.
3. Make sure that only the script can read the configuration file if it contains any sensitive information such as passwords.
4. Make sure the configuration file specifies a temporary directory, even if PKZIP will never need to create temporary files.

Use of the **silent** option will allow a script to run without a controlling terminal. If your scripts all run fine when you try the command from your shell prompt, but hang when running out of cron or some other background process, you need to use the **silent** option. Normally, PKZIP attempts to gain full control of a terminal in order to prompt the user. The **silent** option suppresses this behavior. To use a configuration file for your script, you should first create an empty configuration file. To create an empty configuration file, use the command:

pkzipc -config -default

This will create a configuration file in your current directory, called "pkzip.cfg" with the default settings. If you do not want to destroy an existing configuration file in your current directory, you can specify the location for the new configuration file by setting the PKZIPCFG environment variable.

Once you have the configuration file, you can move it to a directory where the script can read the file, and then start modifying your script. The following examples all use the Bourne shell (generally /bin/sh) for simplicity. It is assumed that if you write scripts for a csh-based shell (csh or tcsh), you can adapt sh syntax to your needs.

Near the top of your script, add a line like the following:

PKZIPCFG=/path/to/scripts/pkzip.cfg

export PKZIPCFG

Note that the environment variable includes the name of the configuration file. This allows you place multiple configuration files in the same directory. Now that you have done this, any time the script runs PKZIP, PKZIP will use the /path/to/scripts/pkzip.cfg file for configuration options.

Why should I explicitly set a configuration file? And why should it be read-only?

PKZIP always uses configuration files. If the configuration file is not explicitly set with the PKZIPCFG environment variable, PKZIP will look in the current directory. A malicious user could put a configuration file in the directory where the script runs, and change the behavior of PKZIP. This could result in the wrong files (or even no files at all) being compressed or extracted. It could cause the extracted files to have different permissions after they are extracted, or it could even cause an SFX you create to ask the user to run some program after the SFX is run. This program could be a trojan created by the malicious user, and added by the configuration file. As you can see, it is extremely dangerous to not specify a configuration file explicitly. Because it is so dangerous, it is also dangerous to let anyone change the file. The ability to change the file allows a user cause the same types of damage as when creating one from scratch. Likewise, the directory should be protected, so the file cannot be removed, and then replaced with a new one.

You could, of course, pass every command line option in your script, to override any settings in any configuration file, but with over 60 options, your command line would be too long for most shells to process.

So, you can specify defaults for all of the options. How does this help me?

While the online help and this manual indicate that not all options are configurable, you can manually put any option into the PKZIP for UNIX configuration file, and it will work. Do not include the beginning “option character” (usually ‘–‘) in front of the option. Because you can configure "non-configurable" options, you can hide some data, such as a password in the file. Just add:

PASSWORD=mypassword

to the configuration file, and the files you compress will be encrypted using "mypassword". When extracting files, the same principle applies. If the password for the .ZIP archive is "mypassword", adding the above line will tell PKZIP to use "mypassword" to decrypt the files in the archive. If your configuration file can only be read by the script, no one else on the system can determine the password for the archive.

Similarly, you can specify an archive to be digitally signed by adding the "CERT=", "SIGN=", and "HASH=" options to the configuration file. Since certificates and keys are often password protected, you will have to export your certificates in PKCS#12 files to DER format. The command line utility openssl (http://www.openssl.org/) can do this. We strongly recommend setting the permissions on the certificate file so that it cannot be read or changed by other users.

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